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PROGRESS IN TIRE MAKING.

WE decline to record a prophecy as to whether automobiles will ever be run very generally without rubber tires. But it is a safe assertion that, without elastic rims for wheels, the automobile as we now know it would never have been developed. Progress in automobile building—as relates to size, the speed attained, and the safety of automobiling—has been made only so fast as the rubber manufacturer has succeeded in producing tires capable of withstanding the increasingly heavy strains placed upon them. We believe that the rubber men have more than kept pace with the car constructors in their share in the evolution of the automobile.

In the first recorded automobile race, no competing builder was willing to have his car equipped with rubber. But a rubber manufacturer who was determined to have elastic tires tested built a car himself for which his factory supplied the tires. No less than 26 tires were burst in running that car 621 miles, and the result discouraged the use of rubber for a considerable time. But the automobiles of that period were all unsatisfactory, for reasons which disappeared only when, through the incessant efforts of the rubber men, resilient tires were produced that could be depended on.

Now that the automobiles in use are numbered by the hundred thousand, who sees one without rubber tires? They are used as a matter of course, bought as an every day commodity, without a further guarantee than applies to the sale of goods generally. Tire punctures happen every day, of course, but considering the great number in use, the percentage is surprisingly small. And by no means all the accidents in motoring are due to tires. A contestant in a recent great automobile meet in Europe, returning from the course with honors, ditched his machine in trying to avoid running down a drunken peasant's cart, and the automobile was rendered useless. But there is no record that the tires were damaged.

Incidents can be multiplied indefinitely to show that pneumatic tires withstand hard treatment and accidents quite as well, if not better, than the remainder of the vehicle. A tire goes bounding over a stone in the road, unharmed, but if a crankshaft strikes it, it may be bent and rendered useless. The rubber is elastic; the steel isn't. As far as strength is concerned, the tire maker has only to put in the proper materials, in connection with good workmanship, and the same applies to durability.

Good roads are desirable for automobiling, but not so much for rubber tires as for the rest of the machine; in fact, the great merit of the rubber equipment is that it supplies a good road wherever it is carried, and without which, in very many places, the automobile would be unavailable. The best rubber tires made yet may not be perfect; the maximum severity of requirement on the part of the motorists has not been reached. Even

for present requirements the live rubber tire maker is busying his faculties to bring out a stronger, more trustworthy, and more durable product, being careful meanwhile that his competitors do not surpass him.

So we may look for even better tires, and, with their appearance, new records in automobile construction and automobile running. There is even greater incentive than before for the rubber man to devote himself to tire betterment, even if, in the distant future, roads should be so improved as to render elastic tires unnecessary, or springs and shock absorbers should be developed to the point of displacing them.

USE OF RUBBER FOR INSULATION.

IT is natural that, to "the man in the street," motor car tires should represent the greatest development in the history of the rubber industry. Ten years ago the horseless vehicle was so little in evidence that it hardly had a more definite name in popular speech. Today only the blind can avoid seeing automobiles constantly, and the rubber tire is by no means the least conspicuous feature of these vehicles. It is not too much to say that doubtless millions of people have derived from seeing such tires their first idea of rubber as a commodity of real importance. And nine out of ten writers in the public press who have occasion to mention rubber refer to its price having advanced greatly in recent years on account of its consumption in tires. The tire trade, in fact, has become enormous, not only as regards automobiles, but nearly every other type of vehicle used.

But this is not the only great use of rubber; it is possible that it is not the greatest. It certainly is not the only branch of rubber consumption that has shown a rapid rate of increase during ten years past. A use of rubber that appeals less to public interest, because it is by comparison so little seen, is in the electrical field, for insulation purposes. Without means for insulation the electricity in everyday practical use would be as uncontrollable as the lightning flashes in a thunder storm, and rubber is, *par excellence*, the world's insulating material. It is only necessary, therefore, to reflect upon the extent of the applications of electricity to-day, to realize what an important demand these must create for the products of the rubber factory.

The electrical interest embraces the making of submarine cables, which have been insulated, for the most part, with Gutta-percha, but this material is disappearing from the market and must be replaced by India-rubber for deep sea work. From submarine cables, costing sometimes millions of dollars, down to telephone receivers, the list of articles requiring insulation is too long almost to be comprehendable, but into nearly all of them rubber enters, the sum total in a year being very large. Here the automobile comes in again, at least the electric vehicles, an important feature of which is the hard rubber battery jars, for the storage of the motive force.

No exact statistics of the extent of the use of rubber in the electrical industries of the world are possible. But to indicate the growth of the electrical industry in the United States alone it may be worth while to notice that the recent industrial census reports the total value of products of the factories classed under "Electrical machinery, apparatus, and supplies" during 1905 at $159,551,402 against $105,831,865 for the census year 1900. These figures, of course, do not relate alone to goods into which rubber enters. The figures for "Insulated wires and cables" were $34,519,699 last year, against $21,292,001 in the year 1900. On the other hand, a number of general rubber factories produce electrical materials which are not embraced in the preceding figures.

CONTROL OF THE PRICE OF RUBBER.

EVERY year brings its crop of rumors of new "rubber trusts;" indeed, no other branch of industry or trade seems to have been the subject of so many rumors of this sort, nor with so little basis of fact. One reason is that, although rubber is a commodity in such widespread use, its principal sources, to date, have been so remote from centers of civilization that most people know little about how crude rubber is produced. And the general public, whether in America or Europe, is little better informed regarding the processes of making rubber goods. Hence, when the average man reads that a new great "trust" in rubber is being formed, he accepts the assertion as fact, merely because it has appeared in print.

As for crude rubber "trusts," interest in them centers in the suggestion usually made that their object is to raise prices of the raw material, which would, of course, compel manufacturers to charge more for rubber goods. It is an odd fact, however, so loosely are these rubber "trust" rumors put together, that manufacturers —*i. e.*, the primary consumers of raw rubber—are often represented as promoting movements to put up its price. To a thinking man nothing could be more improbable.

A pertinent question is, Can any "trust" raise the world's level of rubber prices? If all the sources of rubber, present and prospective, could be brought under a single control, it would be a simple proposition to dictate prices to the whole world. The same is true of wheat and cotton and coal and tallow candles. But such consolidated control of rubber is out of the question. It was an impracticable dream when rubber was only a forest product in a few countries; the idea is more chimerical now that the area of rubber production is being extended so widely under cultivation. If all the rubber trees in the Amazon valley were owned to-day by one man, the world could soon become independent of him, through the planting of Para rubber elsewhere.

Under conditions as they actually exist, and always have existed, the price of rubber is governed by the supply, considered in relation to the demand. There is

always as much rubber as the world wants. It is true that the rubber districts known fifty years ago became in time incapable of supplying the demand, but the offer of higher prices for rubber led to the exploiting of new districts. When there were no new districts to be discovered, and prices continued to rise, people began to plant rubber. It is possible that cultivation may yet make rubber so plentiful that prices will fall materially. But then as now, the price of rubber will depend upon how much the consuming trade will pay for it; not upon the cost of production, not upon efforts at market control by traders, not even upon governmental control, as lately reported from Brazil.

To state the matter more briefly, the price of rubber is governed by the supply. Its sources are too extensive and too scattered to be "cornered." The price fluctuations of a day caused by petty local manipulation are mere exceptions to a general rule. If it should be to the interest of a consumer to pay a high price, he will pay it, not caring what the profit of the producer may be. On the other hand, he will not pay more for rubber than the demand justifies, no matter if the price means a loss to the producer.

A RUBBER FARM FOR EACH FACTORY.

WHEN companies first began to be formed for exploiting rubber plantations in Mexico on a large scale, their promoters invariably solicited investment on the part of rubber manufacturers, under the impression that the latter would become interested more readily than ony other class in the creation of new sources of raw material. As a rule, however, few manufacturers at first were disposed to take stock in this new form of enterprise. Their capital was fully employed in the making of goods and finding a market for them—a business with which they were familiar. Rubber culture had not been proved a success, it involved problems to which they were strangers, and in any event capital invested in planting would not yield an early return. They used cotton as well as rubber, but they had never thought of producing their own supplies of cotton. They were content to continue buying raw materials as they had always done.

Now that the production of plantation rubber has emerged beyond the experimental stage, there are indications that the rubber manufacturers are beginning to view in a different light the question of a factory controlling its own base of supplies. As has been pointed out in THE INDIA RUBBER WORLD there are rubber planters to-day who estimate their profit on rubber at $1 or more per pound. Even if rubber should decline in price one-half—which no one now considers probable—these planters say that its cultivation would still be profitable. Clearly, the manufacturer who owned a plantation on which rubber could be obtained at a cost of $1—or 50 cents—less than the market price for the product would have an advantage over a competitor who bought in the open market. These figures, by the way, are not mere guesswork, but are supplied by men accustomed to the management of large plantations—particularly tea—under business systems as well organized as those of any manufactory.

As more planted rubber estates become productive, and the planting of this crop becomes recognized as an established business, we may expect the buying and selling of such properties to become an ordinary occurrence. It may be then that large rubber manufacturers, who would have hesitated to invest in the creation of a rubber farm requiring years for development, will feel differently about buying one which has become productive and profitable, if obtainable on reasonable terms. Or they may buy shares in the larger, company-owned plantations, conducted on a scale too extensive for the capital of most rubber factories.

Without doubt there will be found, in time, advantages to the rubber factory in having its own rubber farm, apart from the item of supplies at low cost. One would be the securing of rubber of uniform quality—made to the manufacturer's own specifications, so to speak—delivered at stated periods, and the cost of which could be determined for months, if not years, in advance.

OUR CONGRATULATIONS TO THE GERMAN RUBBER TRADE for having contributed by its liberal support to the development of so creditable a representative of its interests as the *Gummi-Zeitung*, of Dresden, which has just completed its twentieth year of publication. Looking back to the first issue of our contemporary, now before us, we find a very small production indeed, as compared with the *Gummi Zeitung* of to-day, but it must be said that Herr Gampe gave indications from the start of recognizing what a trade and technical journal in this particular branch should be, to prove helpful to its patrons. Unfortunately he did not live to see the success which his paper has attained, but it is none the less a striking testimonial to the intelligent farsightedness with which he planned the publication. The *Gummi-Zeitung* and the German rubber industry have grown hand in hand. The rate of growth of the industry is shown by the net imports of raw rubber, now six times as great as they were twenty years ago; we should say that the German trade paper has done even better.

WHETHER ANY EUROPEAN TIRE MAKERS will establish factories in the United States must be determined apart from any such considerations as have led Continental firms to plan branch factories in Great Britain. The Britisher apparently buys motor tires (and other wares) more readily if they are produced on British soil, and the Continental firms which gained a market in England before the home industry there was fully developed are seeking to hold this trade by offering their tires as "home made." But European tires, however good, have never been predominant in the American market, nor the trade in them relatively so large as in Great Britain. It is true that the American tariff barrier would be avoided by European firms by establishing plants here, but perhaps any saving under this head would be offset by the higher scale of wages in the United States.

MR. RYAN BECOMES INTERESTED IN RUBBER.

IN the recent negotiations which resulted in the granting of important concessions in the Congo Free State to an American syndicate, the latter was represented by Mr. Thomas F. Ryan, one of the most notable figures in New York financial circles, though his name has not appeared hitherto in connection with rubber.

Thomas Faulkner Ryan is one of the men who came to New York from the South, after the close of the civil war, in search of fame and fortune, and succeeded. He was only six years in rising from a small clerkship to membership in the New York Stock Exchange, and one of his biographers asserts that never in his 32 years in Wall street has his diary recorded failure. Mr. Ryan was born on October 17, 1851, in Nelson county, Virginia, his paternal ancestors having come from the north of Ireland in colonial days. On the other side he was of Scotch-Irish descent. Losing his mother at the age of five, young Ryan went to live with his maternal grandmother on the old family estate. At 15 he assumed control of the estate, and though he managed it as well as the disastrous consequences of the war permitted, he realized after two years that the effort was hopeless.

THOMAS F. RYAN.

In 1868, therefore, he left home, almost penniless, but too proud to seek aid from family friends, and set forth to make his own way. Reaching Baltimore, he found scores of Southern lads in like condition, seeking employment of whatever kind. Day after day he walked the streets, applying in vain for work, until his last dollar was reached. Finally he called at the large commission store of John S. Barry, and was told to report for work the next day. But he calmly announced his intention of beginning at once, which he did. His salary was very small for two years, at the end of which time Mr. Barry, attracted by the young man's fidelity and persistence, offered him a place in a banking house which he was about to establish in New York.

During the two years following Mr. Ryan learned the first principles of finance. Having now attained his majority, he secured a partnership with a member of the New York Stock Exchange, and within another two years was able to buy a seat for himself. His capacity won quick recognition and he soon numbered among his business and personal friends many large Wall street operators, including Samuel J. Tilden, whose fortune was made largely through the reorganization of railways. During the next 10 years Mr. Ryan's firm carried through many large transactions.

In 1885 though retaining his Stock Exchange membership he retired from business, intending to rest. But before a year he had joined hands with William C. Whitney in consolidating New York street railroads into the now large Metropolitan system. Mr. Ryan next acquired control of the Milwaukee street railways, out of which he made a large amount of money, and he was associated with others in building up the Consolidated Traction Co. of New Jersey. After the downfall of the Richmond Terminal Co., controlling a number of southern railways, he took an active part in reorganizing them in the Southern Railway system. He likewise reorganized the Central Railroad and Banking Co. of Georgia.

Space is lacking here for a complete list of Mr. Ryan's activities, but the last "Directory of Directors" showed him to be a director in 29 important corporations—financial, transportation, and industrial—including the American Tobacco Co., which he organized; the Bethelem Steel Corporation, and the Consolidated Gas Co. of New York. Mr. Ryan is the first vice president and active directing head of the Morton Trust Co., and most active among those who control the National Bank of Commerce, the third strongest in New York. Last year he paid $2,500,000 for control of the Equitable Life Assurance Society.

During the past month Mr. Ryan has announced his retirement from the boards of most of these corporations, except the leading financial institutions. He is probably the most active force in the trust company field in the United States. He has never been a manufacturer or a railway manager, but might best be described as a maker of market values for securities, being a master of speculation, of short term investment, and reorganization of corporate businesses. His fortune has been estimated as high as $60,000,000, while others regard $25,000,000 as nearer the mark.

It has been said of Mr. Ryan that his whole active life has been spent in Wall street, and there are no facts or opinions outside Wall street to judge him by. He certainly does not take the public into his confidence, and the culmination of many of his plans has afforded the financial world a surprise. Mr. Ryan, however, does take an interest in other than financial affairs. He has been active since 1876, retaining a voting residence in his native state, where he has been mentioned in connection with United States senatorship. The ancestral home which he was unable to manage as a boy, he was able to purchase later, together with 10,000 surrounding acres. Mr. Ryan is a member of several leading clubs in New York, and is an active supporter of many charities. Mr. Ryan married the daughter of his first employer, and has several sons, who are expected to succeed him in various business activities.

Mr. Ryan recently became a director in the Continental Rubber Co., this being his first official connection with the rubber interest. But as the practical head of the Morton Trust Co., he had financed important transactions for the United States Rubber Co., and he is a director of the Industrial Trust Co., whose president is Colonel Samuel P. Colt, of the United States Rubber Co.

THE RUBBER RESOURCES OF FORMOSA.

WHILE in Japan, before the recent war, the Editor of THE INDIA RUBBER WORLD had the pleasure of visiting the Fujikura Insulated Wire and Rubber Co., at Tokio, the oldest and most important in this branch in the empire, and meeting the enterprising

"ECDYSANTHERA ROSEA"—A RUBBER PLANT OF THE SAME FAMILY AS THE FORMOSAN RUBBER.

manager, Mr. T. Matsumoto. The Editor having with him late information on the success attained in rubber culture in Ceylon and the Straits, Mr. Matsumoto became interested in the possibility of planting rubber in Formosa, an island formerly belonging to China and as yet not greatly developed. The following letter has been received from Mr. Matsumoto:

HENRY C. PEARSON, Esq., New York—*Dear Sir:* First I must ask to be excused for my long silence, since your visit to our factory. I have to thank you for your kind suggestions for the benefit of our works, and then shall write a few lines about my trip to Formosa.

When you visited our factory, in 1904, I asked your idea in regard to trying rubber culture on the island of Formosa, and I told you that I hoped to get a chance to go there to investigate the matter. But the war coming on, I was kept very busy, without any chance to leave our factory. At the beginning of this year, however, I received reports from a friend on that island, that rubber trees had been planted on trial in the botanical garden at Taipei, and also that wild rubber trees had been found in the Sinchu district. So I could not wait longer, but started from here on March 16, and spent one month on the island. The outlines of what I learned are as follows:

One small tree of *Ficus elastica* was sent from the Imperial Botanical Garden of Tokio, and planted in the garden at Taipei. From this resulted 2000 or 3000 stumps, which were sent to every district to be planted on trial. Those seen by me seemed to be growing in good condition, but the result is a question, as the trees are yet too young for tapping, being only 5 or 6 feet in height.

The wild rubber plants found in Formosa are vines, described as a species of *Ecdysanthera* (botanical name). The largest that I saw were 50 or 60 feet high, and 6 inches in diameter. The milk is very thick, and coagulates readily into a brown colored rubber of fine quality. When I visited the island the season was blossom time, and I enclose a specimen blossom and leaf.

These vines were discovered first at Taipeen, near Bankai (a savage district), seven miles from the city of Happo in the Sinchu district, and 70 miles from Kihing. Mr. T. Kawakami, an official of the bureau of agriculture, was very much interested. After investigation he found rubber everywhere in the forest near Bankai, in the northern part of Formosa, and he hopes to make that a leading production of the island. On the other side of the island we are trying to plant these vines by various methods, but are not very hopeful of success, since they do not seem to grow quickly. Hence I am considering a plan to plant the Pará rubber, or some other rubber tree, and am trying to get seeds from Ceylon.

In Bankai, which embraces about one third of Formosa, about 100 000 savages are living, and some of their tribes are very cruel. They like to kill natives and prize the heads very highly. In fact, a man's rank is settled by the number of heads they have. A young man will carry the heads he has when he goes to a girl to ask her to be his wife. There are two festivals each year, at seed-time and at harvest. Then they must offer a new head to their gods, from which these events are called head festivals. Therefore, before a festival, they will all go out for head hunting, carrying food for five or six days, so that during these seasons the other natives are afraid to go too near Bankai. As a custom of expressing friendship, when a man gets a new head, he will invite his closest friends. He makes a hole in the head, which they fill up with wines, and then put their mouths together under the neck,

SPECIMEN OF RUBBER FROM A NATIVE VINE IN FORMOSA.

SAVAGE NATIVES OF FORMOSA.

where the mixture of wine and blood is dropping, and drink each other's health.

Naturally only a few men travel to the interior of Bankai, but the government is endeavoring to tame the savages. If we can get freely into Bankai we believe that enough rubber will be found in the forests to be a valuable production of the island. I hope to write again to report on our success before many years. Besides, I hope that rubber planting will succeed. I shall go again to Formosa this year to study for this work. I should like your idea in regard to the climate of Formosa as suited for rubber.

Our works are setting the new machines, which you kindly inspected and some others, in a new building, and expect shortly to be running them. Very truly yours, T. MATSUMOTO.

Tokio, Japan, September 3, 1906.

* * *

NOT much is known in detail of the flora of Formosa, owing to the fact of the island having been so little explored by trained observers, though in the tangle of creepers and forests which cover the greater part of its area of 15,000 square miles it is possible that important rubber yielding plants may be found. The flora of the island, however, is known to be rich and varied, including some varieties—among them the camphor tree—not found elsewhere. The name Formosa was given to the island by the Portuguese, as a Latin translation of its native and Chinese names, both meaning *beautiful*. The island lies about 60 miles from China, between 22° and 25° north latitude, and about 600 miles from both Manila and Hongkong. It is about 225 miles in length, north and south, and has a population estimated as high as 3,000,000. Its people are of a mongrel type, exhibiting all the most unpleasant features of the Malay, Chinese, and Portuguese conquerors. Part of the island is mountainous, but the remainder is of great fertility. The camphor trees are found in the central plateau, and at places tea, rice, and sugar are cultivated extensively. But the savage tribes, such as Mr. Matsumoto has described, have retarded exploration and development. Formosan weather is most uncertain. The rainfall varies greatly in different parts of the island, being very heavy at places. Certain sections are visited by destructive typhoons. The climate is tropical, though the higher mountains are snow covered in winter. As the result of the war a few years ago between China and Japan, Formosa came into the possession of Japan, the government of which has manifested an intelligent interest in the development of its resources—something which China had never been concerned about.

* * *

LAST summer the United States consul at Tamsui, Formosa, Mr. Fisher, made a report to his government on the existence on that island of a native rubber producing vine, which had been designated by Hayata and Kawakami as *Ecdysanthera utilis*. He sent to Washington a specimen of rubber produced from it, a photograph of a portion of which has been made for THE INDIA RUBBER WORLD, the result being given in connection with this article. Little has been published regarding the genus *Ecdysanthera* as rubber producing plants, but in a recent work ("Le Caoutchouc en Indo-Chine") Dr. Spire presents a study of several species of this genus found in French Indo-China, some of which are of considerable value as sources of rubber. No less than nine species of *Ecdysanthera* are reported on, though *E. utilis*

PEACEABLE NATIVES OF FORMOSA.

does not appear in the list. But since their general characteristics are the same, we have reproduced (on the preceding page) from Dr. Spire's book an illustration of E. *rosea*, showing the leaf formation, flower, and elongated seed pods. The export of rubber from Indo-China has reached in a single year 339 tons, most or all of which is the product of vines, including the species here named. It is of no little interest to learn that similar rubber plants exist in Formosa.

THE RESIN CONTENT OF INDIA-RUBBER.

THAT the percentage of resin contained in a particular kind of crude rubber does not always serve as a correct criterion by which to judge its commercial value is asserted by Lyman M. Bourne, of the Eastern Rubber Co., New York. At the same time, when two samples of the same kind of rubber show a different resin content, the sample containing the lesser amount of resin will give the stronger and more elastic vulcanized compound. On this account, says Mr. Bourne, it must be of interest to know that the resin content of nearly every kind of India-rubber has increased during the past two or three years.

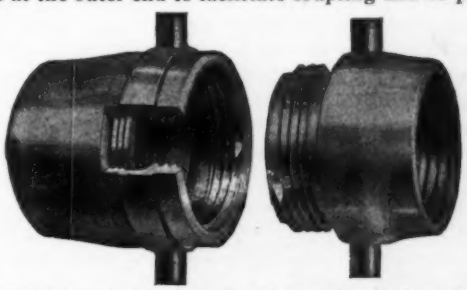
Mr. Bourne has prepared a table of analyses, repeated below, which show such increase, when compared with previously published results. The method employed was as follows: Two or three grams of the sample were weighed out, cut into small pieces, and dissolved in benzol. From this solution the rubber was precipitated by ethyl alcohol. The mixture of benzol and alcohol was then decanted as closely as possible through a silk filter and the precipitated rubber washed several times with alcohol. The benzol alcohol mixture, carrying the resin in solution, was evaporated to dryness in a weighed flask on a water bath and dried, as was also the precipitated rubber in vacuum at 80° C. for two hours.

Mr. Bourne's table follows:

GRADES.	No. lots analyzed.	Per cent. Rubber.	Per cent. Resin.	Approx. Shrinkage.
Addah niggers, Congo	1	93.3	6.7	40
Aruwimi, Congo	2	91.1	8.9	6
Assam prime, India	6	84 2	15.8	25
Assare, Brazil	1	91.1	8 9	
Benguela, Benguela	2	88 7	11.3	25
Borneo, 1st, Borneo	1	88.2	11.8	38
Borneo, 2nd, Borneo	2	80.7	19.3	45
Borneo, 3rd, Borneo	1	79.3	20.7	30
Brazilian strips, Brazil	1	72 0	28.0	20
Cameroon, Africa	1	87.5	12 7	20
Caucho ball, Brazil	24	90.0	10.0	33
Caucho sheet, Brazil	14	91.0	9.0	38
Caucho slab, Brazil	13	86.8	13 2	33
Conakry, West Africa	1	93.3	6.7	15
Congo, lower Congo	2	87.3	12.9	40
Congo, upper Congo	7	86.3	13.8	16
Congo, French Congo	2	90.5	9.5	33
Congo, black, Congo	1	84 4	15 6	
Congo, Wamba, Congo	1	84.4	15 6	60
Costa Rica, Costa Rica	1	87.0	13.0	17
Equateur, 1st, Congo	1	92.9	8.1	
Ecuador strip, Ecuador	1	90.4	9.7	20
Gaboon lump, West Africa	1	27.6	72 4	35
Gambia, 1st, Senegambia	1	88.8	11.2	42
Gold Coast lump, Africa	5	72.7	27.4	35
Guayaquil strip, Ecuador	7	89 8	10 2	50
Kassai, black, Congo state	1	88.4	11 6	10
Kassai, red, Congo	2	88.9	11.0	30
Kassai, red, 2nd, Congo	1	94.6	5.4	
Kassai, red, 3rd, Congo	1	89.0	10 9	25
Lahou twists, Congo	1	9 .6	8.4	27
Lagos lump, Lagos	1	93.3	6.9	40
Lopori, 1st Congo	1	92.6	7.4	10
Lopori, 2nd Congo	2	62.1	87.9	20
Madagascar	1	90.0	10.0	42
Manicoba sheet, Brazil	1	90.6	9.4	16
Mangabeira, Brazil	1	83.5	16.5	43
Massai, red, Congo	2	93.6	6.4	
Massai, pink, Congo	1	90.1	9 9	
Mexican, *Castilloa*	1	88 7	11.3	42
Mexican Guayule	3	74.6	25.4	25
Mongala, Congo	2	87.5	12.5	10
Mozambique	1	75.8	24.2	60
Niger paste, Africa	1	14 2	85.8	25
Para, fine, Brazil	23	96.6	3.4	17
Para, Ceylon, fine	3	97.5	2.5	
Para, medium, Brazil	9	95.2	4.8	17
Penang, Malaya	1	89.9	11.1	33
Penang, white, Malaya	1	85.6	14.4	38
Penang, prime, red	1	90.3	9.7	30
Penang, white	1	85.6	14.4	38
Peruvian tails	2	93.0	7.0	38
Pontianak, Borneo	7	25 0	75.0	60
Shebbro, West Africa	2	92 9	7.1	25
Shebbro, Conakry, W. Africa	1	90.2	9 8	20
Twists, prime, West Africa	1	95.1	4.9	20
Twists, 1st, West Africa	1	89.5	10.5	20
Twists, 2nd, West Africa	1	92.7	7.3	20
Tuno gum	1	20.1	79.9	
Uele, Congo	2	95.1	4.9	11
West India slab	1	74.4	25.6	50

EUREKA "NON CROSS" THREAD COUPLINGS.

THE couplings used with fire hose are hardly of less importance than the hose itself. In this connection may be mentioned the "non cross" thread with which the hose made by the Eureka Fire Hose Co. (New York) is equipped—a feature that is receiving much attention. All Eureka couplings are made of bronze, and unless otherwise desired, all the threads are of the non cross variety; that is, they are cut off at the outer end to facilitate coupling and to prevent



the possibility of the threads being crossed when the hose connection is being made. These couplings are made with threaded swivels, which consist of four annular threads, cut male and female, in the inner and outer parts of swivel respectively. These threads are standard 60 degrees and of full depth and give a greater wearing surface than the ordinary flanged lip swivel joint, while their V shape prohibits any possibility of jamming, as the tendency of the joint is to free itself. The threads, swivel, washer recess, and waterway of the Eureka couplings are made at one setting of the part in a lathe, and are consequently perfectly true to each other. Adequate expansion pressure may be applied without the slightest injury, and they may be attached with an ordinary expander without the use of any special appliances such as many other couplings require.

THE growth of the use of motor 'buses in England is greatly stimulating the manufacture of solid rubber tires. The Dunlop company are now making a specialty of tires of this class.

THE INDIA-RUBBER TRADE IN GREAT BRITAIN.

By Our Regular Correspondent.

IN marked contrast to the crowding and animation of the yearly motor shows held at Olympia Hall, London, the recent Engineering and Machinery Exhibition there was very badly patronized by the public. It is not perhaps surprising that the objects of interest as far as this Journal is concerned were limited to packings of various sorts. We have heard a good deal of the invasion of our market by American packings in late years, this being due to some extent to our manufacturers emanating from firms who only took it up as a side branch. We have some companies, however, now who make a specialty of the packing business and who lay themselves out to meet all modern requirements. Two or three such companies were exhibiting in a comprehensive scale at this Exhibition and their stands may be briefly referred to. The Dexine Patent Packing and Rubber Co., Limited, have works at Abbey lane, Stratford, in which the necessary rubber machinery is installed for washing, mixing, and so on. The compound known as Dexine was discovered some nine years ago and is stated to be a combination of vulcanized India-rubber and other ingredients prepared by a special process. This is rather non committal language as far as the manufacture is concerned, but I understand that the amount of rubber is very small in the packings for high pressure steam purposes. For boiler gage glass rings it is claimed that Dexine is much superior to asbestos, and is at the same time considerably cheaper. In the patent metallic boiler feed pump buckets the Dexine is supplemented by an anti-friction wire gauze; these buckets are fitted back to back with an intermediate ring between each acting as a support to both buckets on the forward and backward stroke. Dexine is stated to withstand 600° F., and 300 lbs. pressure so that our engineers need not go so far as America to fill their requirements. Messrs. James Walker & Co., of the Lion Works, West India Docks, London, had a large assortment of their various packings, rubber valves, Balata belting, etc. In the "Wallico" sheet jointing for high pressure steel wire gauze is covered on both sides with a special jointing material and in the "Lion" sheet there is a combination of woven wire asbestos and heat resisting material. To judge by the appearance of all the modern high pressure packings plumbago enters largely into them.

THE OLYMPIA EXHIBITION.

COMPARED with the large number of proximate analyses of raw rubber which have been made in recent years but very little information is available as to the composition of the fresh latex. This is no doubt largely due to the difficulty of effecting its transportation without coagulation setting in. With regard to the amount of rubber in the Pará latex the figure of 32 per cent., which I found some 15 years ago agrees very well with other analyses I have seen and it is well known that the strength of the solution is variable. The point, however, to which I wish to draw special attention is the amount of nitrogenous or albuminoid matter in the latex. Weber in his book quotes an analysis by Faraday of Pará latex showing albumen 1.90 per cent. and a bitter nitrogenous substance 7.13 per cent. Weber says that from these figures the rubber would contain about 4.3 per cent. of albuminous matter, an amount he considers highly questionable. There is one rather curious point about this analysis and that is that the figures for the nitrogenous matter are identical with those given in Faraday's analysis of Mexican latex and quoted by Hancock in his book. Is it possible that some confusion has arisen and that Faraday has been credited with finding more albumen in Pará latex than he did find—that is, if he ever made a complete analysis of Pará latex, a point on which I have not at the time the opportunity of deciding. This apart, however, I agree with Weber that the figure is suspiciously high. Lascelles-Scott gives the albumen as 2.71 per cent., though as he does not state the source of the latex it does not go for much. Seeligmann lumps the albuminous and mineral matter together as equal to 12 per cent., which Weber says is altogether too vague. Weber himself does not seem to have given any figures, which is a pity, while my own analysis showed that the albumen matter amounted only to 0.5 per cent. in the Pará latex. As the high quality of the Pará rubber is due, to some extent at any rate, to its freedom from such impurities it seems of some importance to know what the figure really is. I am not acquainted with any other figures than those quoted, though I imagine that others must have been obtained in recent years.

COMPOSITION OF RUBBER LATEX.

IF all rubber solution contained the same percentage of rubber, and that of the same grade or quality, the price of the product as sold by different makers might be more nearly uniform. A glance, however, at the varying prices quoted indicates that the above conditions do not obtain, and indeed it is now matter of common knowledge that the one-time uniform standard of strength and quality has given way in these latter days of increased application and increased competition to a variety of standards set up by individual manufacturers. Of course this procedure may not be without method. It may be taken that the strongest solution that can be made conveniently for ordinary use contains 21 per cent. of rubber. This strength is required for certain purposes. The British war office, for instance, insist on at least 18 per cent. of rubber in the solution supplied to the carriage department at Woolwich. Such strength, however, is quite unnecessary for use in connection with tire repairs, 11 to 15 per cent. of rubber being quite enough. Solution as low as 8 or 9 per cent. is regularly sold, as is also some which has its lack of body made up by addition of rosin. But these cannot be recommended as being really in the interests of economy. African rubber has largely taken the place of fine Pará rubber in late years for solution making, and where the product is sold at a corresponding reduction in price there is little to be said against it. Now that solution making has passed so largely out of the hands of the regular works into those of the cycle and motor repair and outfit dealers, it is not surprising that many alterations in procedure are to be noted. One of these is the use of recovered rubber; not that which is produced from old vulcanized goods but which is got by special processes from certain forms of factory waste. One such description of waste is the felt cuttings from the tennis ball manufacture, the felt being faced with pure rub-

PRICE OF RUBBER SOLUTION.

ber solution in order to effect its adhesion to the rubber ball. It follows, therefore, that when pure rubber can be got from a variety of sources some dealers in solution will be able to obtain their material more cheaply than others, and accordingly be able to sell a corresponding article at a lower rate than others who buy direct from the rubber factory.

THE AVON INDIA-RUBBER CO.

ONE of the rubber industries that has been making marked strides in the thirty years of its existence is the Avon India-Rubber Co., Limited, in Wiltshire. Within the past few years the company have made a special study of the tire trade, in addition to the mechanical rubber business, in which they have been contractors to the admiralty, war office, India office, colonial office, and the principal British and foreign railway companies. The land upon which the works stand comprises about seven acres, and stores, a large fitters' shop, mixing room, calender room, spreading room, mechanical goods factory—where 25,000 square feet of floor space is occupied—drying rooms, tire molding shop, pneumatic tire shop, sundry pneumatic tire department, cycle tire department, packing and forwarding department, and drying floors, are among the divisions into which this extensive space is distributed. With an eye to the needs of the future, special attention has been given to the motor 'bus tire department, and a plant for making these tires has been made a part of the equipment.

BRIEF MENTION.

ANOTHER tire manufacturing firm on the continent to seek a position in the British market is the long established house of Hutchinson, of France. If I am not mistaken this establishment was founded originally by American interests, for the manufacture of rubber footwear, to which other products were added gradually, the progressive character of the company leading them finally to go into motor tires, with which they have been reported quite successful. Their London branch is well located and they seem already to be gaining a desirable amount of business===Cheaper grades of rubber cored golf balls are becoming popular in Great Britain, causing a still further decrease in the sale of solid "gutty" balls. One firm makes balls in four grades, at as many different prices. At the same time the higher priced rubber cored balls remain in demand, and by many golfers are exclusively used.

"THE COTTON DUCK SITUATION."

TO THE EDITOR OF THE INDIA RUBBER WORLD: In the November number of your paper "An American" has endeavored to outline to the best of his knowledge "some features in connection with the cotton duck situation", and it is surprising to see how little knowledge of the situation "An American", interested in the rubber business, has of the actual conditions.

First: Duck is not sold "cash at 10 days" unless buyer's credit is poor.

Second: Shipments are not from 30 to 60 days *en route*, unless duck is bought "in England".

Third: We wonder where "An American" learned to figure the cost of duck above the price of cotton, and if he knows that a bale of raw cotton contains 15 per cent. waste and is willing that the duck mills should add the cost of this waste to the price of cotton.

Fourth: Hose and belting duck is not sold by "the yard" but by the pound.

Fifth: If the manufacturers of duck wanted "An American's" orders he would soon learn that there are several mills out for good business and who have no connection with any "trust".

Sixth: Will you kindly send "An American" gratis the December number of THE INDIA RUBBER WORLD, and be sure that it is not from 30 to 60 days en route? Should you deem it advisable to charge for this number please make the terms less 3/10 days and not "cash at 10 days", terms on which "An American" buys duck.

Any further mistakes "An American" can make with reference to the cotton duck situation will be cheerfully corrected without charge by writing Yours very truly,

COTTON DUCK MANUFACTURER.

New York, November 2, 1906.

TO THE EDITOR OF THE INDIA RUBBER WORLD: Noting in your November issue a letter from "An American" of Providence (a village near thereto, no doubt), his misstatements are too obvious to merit serious comment, except his reference to 17 cents a yard for duck. He was so careless as to omit the weight that in his mind 17 cents would be an equitable price for. If he will pay 17 cents a yard for some 10 ounce duck, which price he arrives at by adding 6 cents to the market price of cotton, I believe we will find several of our mills willing to entertain the business, even though this is commonly regarded as an unprofitable weight at anything like the price that can ever be obtained for it. If he knows of a mill that is willing to manufacture this material at anything approaching the margin over cotton that he mentions, we are interested to hear from it. Just at present a good deal of time and effort is being expended in vain endeavoring to get mills to manufacture hose and belt duck at a considerable advance over the 6 cent margin that he would allow. If this "American" will undertake to construct and conduct a mill on the basis of his views, he can be instantly assured of a steady sale of the product for as many years ahead as he cares to contract for. Probably no duck business is being done on so low a basis as that of hose and belt duck.

COTTON.

New York, November 3, 1906.

LITTLE FIRE HOSE IN TEXAS.

IN an article on the fire departments in the state of Texas, *Fire and Water Engineering* points out that the various municipalities have been very backward in the matter of providing suitable equipment. A list is given of 68 cities and towns in which fire departments of some kind exist, and the total supply of fire hose is put down at only 185,000 feet. In only four cities is there as much as 10,000 feet of hose each —Austin, Galveston, Houston, and San Antonio. The largest city in the state, Dallas, with 85,000 inhabitants, is credited with only 6400 feet of hose, "and probably some of this is not serviceable," remarks our contemporary.

RUBBER WASHING.—A rubber latex washing machine made by Bertram's Limited, of Edinburgh, Scotland, has two corrugated cast iron rollers for reducing the coagulated latex to a thin sheet of crepe like texture. It is constructed upon the principle of the washers used in factory practice, but smaller in size, weighing only 16½ cwt. It may be operated by power, or by two men plying cranks.

RUSSIAN RECLAIMED RUBBER.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I noticed in your issue of October 1 (page 23) an article on reclaiming Russian galosh waste.

If it is of any interest to your correspondent, I beg to inform you that I am the sole representative of the Firma "Prowodnik" in Riga, Russia, for the sale of their reclaimed galoshes, and their daily output of this article is 40 tons. The plant necessary for this large output is very up to date, and is constantly being increased. Their requirements for this branch necessitate about three quarters of the whole of the old galoshes collected in Russia, and the centers where Russian galosh waste is obtainable.

The grades this firm make are as follows: (1) Extra prima, made from pure detachable uppers and soles; (2) prima, made from clean old galoshes, free from canvas; and (3) second quality reclaimed, made from a mixture of old galoshes and mechanical goods.

My firm guarantees that neither of the three kinds contain any admixture of minerals, oil, or chemicals, and that the same is clean and unadulterated.

As I have stated above, this output, besides the amount reclaimed by other factories in Russia for their own requirements, exhausts any surplus of old galoshes, the export of which has become somewhat difficult owing to the export duty which has been placed thereon by the Russian government. Therefore, the suggestion of your correspondent to start a works with a view to reclaiming old galoshes in Russia does not seem very feasible.

There is, I believe, an import duty on reclaimed rubber in America of about 30 per cent. *ad valorem*. Your correspondent's calculation for the cost of the erection of a reclaiming factory in Russia is very far below the actual cost, which would be at least 7 to 10 times the amount mentioned by him.

At the present time the reclaimed being made by the Firma "Prowodnik" is being largely used by English and continental firms, who have thoroughly satisfied themselves as to its merits, as the mere fact of its being guaranteed to be made from nothing but galoshes, and the reputation which the Firma "Prowodnik" has now gained for the excellency of the various articles they manufacture, is an additional safeguard that they are not likely to jeopard their reputation in any way by manufacturing or supplying an inferior article, and thereby risking the receipt of the large orders which they receive, and must obtain, in order to keep employment for the 7000 work people which constitute at the present moment the number at their works. JOHN LANG.

London, October 23, 1906.

[THE importation into the United States of "reclaimed rubber," the product of rubber scrap, is subject to duty at 30 per cent. *ad valorem* as a manufacture of rubber, not specially provided for, under paragraph 449 of the Act of July 24, 1897.]

RUBBER PLANTING IN SOUTH AFRICA.

TO THE EDITOR OF THE INDIA RUBBER WORLD: I am a farmer here and a reader of your paper, and I hope you will kindly give me some information about rubber. My fellow farmers and myself are much exercised in our minds about rubber. We would like to go in for it, but we do not know what to plant.

In the northern parts of North Eastern Rhodesia there is *Landolphia* rubber (vines) growing naturally, but it seems that the artificial cultivation of vines is a process far too slow, and I may add, too uncertain, to suit us. Tree rubber seems better, but then one authority tells us that *Funtumia elastica* (Lagos rubber) will do here, and another authority tells quite the contrary. Ceará rubber (*Manihot*) grows here very well almost in any soil and does not require much care, but on the other hand it does not seem a practical proposition, as nobody has yet succeeded in doing any good with the Ceará tree. Perhaps we do not know how to go about it, both as for the way of collecting the latex and the proper season to choose. It seems to me that neither the Brazilian method of tapping nor the one used by the natives in getting rubber balls from the *Landolphia* vines will do for Ceará, but if somebody would invent a process, mechanical and chemical, by which the young Ceará tree could be cut down, passed through a roller to get out the latex just as it is done with sugar cane, and the juice could then be so treated as to extract from it all the available rubber contained in it. Then our prospects would be very bright. Two year old trees could be cut down, and an equal area at once planted afresh, so that the supply would be continual or at any rate biennial.

None of us in this far away corner are in a position to keep up with the latest notions in rubber planting and latex treating and should therefore feel exceedingly obliged to you, Sir, if you would condescend to give us some valuable advice.

I enclose herewith a climatological table referring to our district, which may be of use or interest to you. With best regards, I am, yours faithfully, A. PAOLUCCI.

Senigallia Farm, Fort Jameson, North Eastern Rhodesia, South Africa, October 12, 1906.

[IN all probability our correspondent's planting must be done either with *Funtumia* or Ceará rubber, the rainfall in his region being too light for *Hevea* or *Castilloa*. The suggestion as to annual crop production of Ceará is of interest. Quite a number are at work now on this line, though so far nothing valuable has resulted. Ultimately, however, this doubtless will be found practicable. As for planting vines (*Landolphia*), the experiments thus far at the botanical gardens have been failures.—THE EDITOR.]

RATS IN RUBBER.—Manufacturers of wire netting should increase their trade with rubber growers in Ceylon and elsewhere, says *Home and Colonial Mail*. Rats are a serious nuisance, as they attack the roots of the young rubber trees. The method of the Ceylon Tea Plantations Company, in using coarse wire netting round the steps, is being followed by other growers. It not only saves the rubber from the rats, but keeps the trees, when planted among tea, from being damaged by weeders and pluckers.

A BRITISH novelty in the way of a fire appliance is a cradle for holding hose in position ready for use in case of emergency. When a fire breaks out a valve is opened and the hose is unwound by gripping the nozzle and pulling it toward the spot where it is to be used. As the coil unwinds the water fills the hose.

THE PRODUCTION OF PLANTATION RUBBER.

RUBBER MACHINERY AT PERADENIYA.

AT the Ceylon Rubber Exhibition a feature on the program which proved of exceptional interest was entitled "A Demonstration of Rubber Machinery," in which Mr. Herbert Wright operated or explained the use of each piece of mechanism on show for facilitating the preparation of rubber from latex. This did not embrace rubber tapping tools which were publicly tested, also by Mr. Wright, on another day, on rubber trees in the garden at Heneratgoda.

Mr. Wright began with Macadam's latex strainer, pouring into it a pailful of latex charged with mechanical impurities. The latex flowed into a bag to which a centrifugal motion was given, and the clean latex issued through a pipe at the side, while the impurities remained in the strainer cloth. Considerable quantities of latex could be handled in 30 to 60 minutes. In this experiment, 2½ gallons were strained in 3 minutes.

Next came Brown & Davidson's settling tank, designed for the accumulation of latex in large quantities. This was provided with a drip tin by which a few drops per hour could be added of dilute ammonia or formalin, this being thoroughly mixed with the latex through the turning of plates within the tank. The machine used in Mr. Wright's demonstration had been filled eight days before with latex, which was still in a good state for coagulation. Latex from trees of varying ages, collected on different days or the same day, can be mixed in the same tank, with the result that rubber of a uniform standard is prepared. The same apparatus may be used for smoking rubber, the fuel used being wood with creosote added, the smoke being so introduced as to come into close contact with the latex.

The demonstrator now used the Michie-Golledge machine, by which latex was coagulated in 1½ minutes. After the machine is set in motion there is originally a centrifugal and subsequently a centripetal motion incurred. But it seems necessary, in order to effect coagulation, to use some acid. Mr. Wright pointed out there was also to be seen at the exhibition rubber coagulated by the ordinary method of putrefaction. The latex is allowed to accumulate. It undergoes decomposition. Acids are formed and the rubber clots or coagulates.

There was an extensive display of rubber washing and macerating machinery. The Federated Engineering Co., exhibited two sorts of rollers; Brown & Davidson four machines, on different lines; and Walker, Sons & Co., a small machine. In all these machines the principle is to subject the rubber to a tearing and stretching process, and while in that condition, to wash it with a strong current of water, either hot or cold. When it has been thoroughly washed the rubber may be passed between other rollers and turned out in crepe and other forms. All the various machines referred to were put in motion at one time.

A machine for expressing moisture from rubber, exhibited by Walker, Sons & Co., was next operated. This is practically a mangle placed horizontally. Onee the moisture is practically expelled, the complete drying can be effected (1) in a curing house, (2) in vacuum chamber, or (3) in a press.

Specimens of rubber were prepared by all the various processes, including two small specimens of block, such as was exhibited so successfully by the Lanadron estate. Practically, Mr. Wright delivered a lecture, during which latex collected during the preceding 12 days was put through all the various processes described, beginning with the centrifugal straining machine and ending with the making of a "block" of rubber.

AWARD OF PRIZES.

Best implement or series of implements for tapping Pará trees (21 competitors)—(*a*) Paring: Gold medal, E. D. Bowman; silver medal, C. O. Macadam. (*b*) Pricking: Gold medal, W. T. Miller; silver, E. D. Bowman.

Best instrument for tapping *Castilloa* trees (12 competitors): Gold medal, C. O. Macadam.

Best instrument for Ceara trees (13 competitors): Silver medal, C. O. Macadam.

Best instrument for rambong (*Ficus*) trees (8 competitors): No. award.

Best instrument for tapping high parts of trees: No award.

Best apparatus for assisting the flow of latex: Silver medal, Brown & Davidson.

Best apparatus for centralizing latex from separate trees. No award.

Best apparatus for storing latex before coagulation: No award.

Best sample of preserved liquid latex: No award.

Best method of coagulating latex: Gold medal, Walker, Sons & Co.; silver medal, W. J. Bird (Duckwari estate).

Best method of preventing putrefaction of rubber: Gold medal, Brown & Davidson (smoking apparatus).

Best apparatus for recovering rubber from bark shavings, or for macerating rubber plants: Gold medal, Brown & Davidson; silver, Federated Engineering Co.

Best rubber washing machine: Gold medal, Brown & Davidson; silver, Federated Engineering Co.

Best method of protecting rubber trees during tapping: No award.

Best plan for curing house: Gold medal, Kelway Bamber.

Best method of packing rubber for export: No award

Best method of vulcanizing, hardening, or coloring rubber: Gold medal, Kelway Bamber.

Preparation of block rubber: Gold medal, Brown & Davidson.

Strainer: Gold medal, C. O Macadam; gold medal, Kelway Bamber.

THE STRENGTH OF PLANTATION RUBBER.

IN a lecture at the Ceylon Rubber Exhibition Mr. C. K. Smithett, one of the judges sent out from London, said that the high price paid for plantation rubber in the London market was due to its purity. But in point of strength fine hard Pará was still superior to the plantation product. How that strength could be obtained without reducing the standard of purity was a question for the planters to settle. But the question struck him: Were they tapping their trees too early? He knew there was a desire to get into the market as soon as possible, and he feared that tapping at 6 years and even less might be a mistake. Forest rubber trees on the Amazon were not tapped until 30 years of age, and at this exhibition some of the rubber which received the highest awards was from trees from 10 to 15 years old and upward. Bad reputations were hard to be got rid of, and it would not

be well to let plantation rubber get the reputation of being weaker than fine hard pure Pará. Then possibly there was a loss in strength from the extraction of too much moisture in plantation practice.

The point was made by Mr. Smithett and other speakers that rubber manufacturers proceed slowly in taking on new grades of rubber—there are hundreds of grades in the market—it being necessary for them to experiment extensively in order to arrive at the proper mixings for kinds of rubber which they have not used hitherto. When a manufacturer has decided to use a new rubber he wants to be able to obtain regular supplies of a given quality, and this has not been possible hitherto with plantation rubber, though the quantities now coming to market are larger. If, as suggested, mature trees are necessary for the production of rubber of standard strength, it will still be a few years before large supplies of rubber of this type are available. The question was discussed of keeping separate, in shipping, rubber from trees of different ages. The suggestion that the latex from different aged trees be kept separate was met by the remark that even a little latex from mature trees mixed with that from young plants might be beneficial.

Dr. Willis said one lesson learned from the exhibition was that rubber from old trees was better than rubber from young trees, and the question was whether they were not tapping too young. Many people agreed that they did this at present, but he was afraid it was impossible to resist the temptation to tap young trees, because at the present moment their rubber was sold not by reason of its quality, but as Ceylon rubber. If the first sample was good, generally all the other samples sold at the same price. That could not last, when they sent large quantities to the market. Then it would be found that rubber from older trees would fetch more than rubber from the young ones, and it became a serious question whether they should not leave the trees a year older before tapping.

PLANTATION RUBBER IN BLOCK FORM.

IT is the opinion of Mr. Charles Devitt, one of the three London judges at the Ceylon Rubber Exhibition, according to *The Times of Ceylon*, that the new block form of rubber is the best that has been exhibited. It has all the advantages which prevent liability to tackiness, and other favorable aspects. But he does not think that, when a fairly large number of planters go in for that form, the premium of 2 pence which the block form is now getting can continue. Nor does he see any reason to anticipate any fall in the price of sheet or biscuit as a result of the preference for block.

Dr. John C. Willis, director of the Ceylon royal botanic gardens, in an address at the exhibition, pointed out some advantages of the block rubber. The Lanadron estate block which carried off the honors at the exhibition weighed 25 pounds, and it occupied about half the space 25 pounds of biscuits or sheets would, and it would pack very much more readily. Biscuits having round edges, a lot of space was wasted in packing. The block form meant a saving of one-half in freight charges. Furthermore, the block, once it was made, exposed a very small surface to oxidization, and consequently was less liable to damage. The inside of the block was completely protected against outside influences, and oxidization could only take place on the few feet of surface exposed, whereas in biscuit and sheet they were exposing the maximum surface.

CONTINENTAL COMMERCIAL CO.

[Plantations at Tolosa, state of Oaxaca, Mexico. Office: 614 Fullerton building St. Louis, Missouri.]

THIS company is the result of combining several Mexican properties owned by St. Louis capitalists—the sugar mill of the Continental Sugar Refinery Co., and five plantations devoted to rubber, coffee, and sugar. The land involved amounts to 5396 acres, including some of the rubber estates first formed in Mexico. One company absorbed was the *Jumiapa Plantation Co.*, which began operations at the first of 1901. All the officers and directors of the consolidated company were on the board of the Jumiapa, and the original plantation manager, B. J. Tunnell, is in charge of the consolidated estates. Another was the *Lolita Plantation Co.*, successor to the Missouri Coffee and Rubber Co., formed in 1899 to develop the "Crittenden" tract. A third was *The Oaxaca Coffee Culture Co.*, organized in 1897. Two other properties are the "Montverde" estate, on which some rubber has been planted, and the "Pittsburg", devoted to sugar cane. The location is near the Tolosa station on the Tehuantepec railway. A recent report mentioned 856,173 coffee and 427,344 rubber trees standing, with plans to increase the number of each to 1,000,000. There are also 500 acres in cane, also to be increased. The Continental company is capitalized at $2,500,000. Charles F. Haanel, president; A. H. Hoffmann, vice president; W. A. Brander, secretary; A. R. Verdier, treasurer.

MEXICAN RUBBER PLANTING NOTES.

THE annual report of The Oaxaca Association (Chicago) for the fiscal year ending April 30 last reports 400,000 rubber trees, 4 to 9 years old, on their "Buena Vista" estate, in Vera Cruz. The first rubber tapping occurred during the year, on a small scale, but with satisfactory results. Considerable additional planting was planned for this year.

Palenque Plantation and Commercial Co., whose records in San Francisco were destroyed in the great fire, are now located at No. 25 Saint Mungo building, in that city. The company are proceeding actively with the development of their plantation in the state of Chiapas, Mexico, on the Rio Michol. The company date from September 22, 1905, having been incorporated with $1,000,000 capital authorized. Mr. J. V. Brenchley, some time with Mr. Harrison, of "La Zacualpa," is plantation superintendent.

Joliet Tropical Plantation Co. (Joliet, Illinois) state that their plan of financing has kept the company in funds for developing the plantation in Vera Cruz, from the beginning. They have 500 acres planted to rubber, now in good condition, and 800 acres in pasture, stocked with 550 head of cattle.

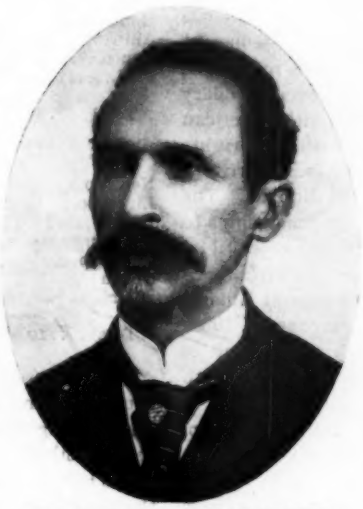
The Batavia Co., Inc. (Milwaukee, Wisconsin) report 1 00 acres cleared on the *hacienda* "Batavia," in Oaxaca state, Mexico, of which 646 to date have been devoted to rubber, 240 to coffee, and 120 to pasturage. The oldest rubber was planted 6 years ago by the former owner of the land, Mr. Alfredo Oest.

The fifth annual inspection report on the San Miguel Plantation Co.'s (Chicago) estate, in Vera Cruz, by Mr. H. G. Filiatreau, elected inspector by the shareholders, is accompanied by an album of 24 excellent half tone views from photographs, taken on the property. Mention is made of 400 acres planted to rubber (some dating from 1902) and 450 acres to sugar cane.

THE ACRE AS A RUBBER PRODUCING REGION.

AWAY up, on the southwest expanse of the upper Amazon valley, bounded by Brazil, Peru, and Bolivia, and ramified by a labyrinthic river system which has no equal, there lie, embracing many thousands of square miles of imposing and somber forests, the richest and most extensive rubber regions in the world. This is particularly true of that large extent of territory lying southeast of the *regio de los bosques*, bounded by the Amazon river on the north, the Javary on the west, the Ucayali on the southwest, and the Madre de Dios on the extreme southwest, from its source to beyond its juncture with the Beni or up to the Madeira river, and which is known as *O Acre*, now forming, under three political divisions (prefectures), the Brazilian Federal territory of the same name.

Large as the production of rubber from the middle and lower Amazon valleys has been up to the present day, it will not stand the least comparison with the immense yield which the vast forests along the principal rivers and numerous affluents and tributaries in the Acrean regions are alone capable of rendering.



CORONEL THAUMATURGO DE AZEVEDO.

What makes the southern regions of the upper Amazon valley, particularly those in and about the Acre, so valuable as a source of inexhaustible supply of the gummy milk, is not so much the unparalleled vast area of rubber producing forests itself as the astonishingly large number of rubber trees—capable of yielding an uncommonly large supply of the highest grade of rubber—contained within almost any given area in the territory. Next, but not least in importance, is the fact that its circumambient river system, owing to its peculiar ramifications, renders easily accessible from almost all points any tract of forest one may choose for operations, which is not the case in the less productive rubber forests of the middle and lower valleys.

As the major part of the great rivers and their principal affluents in the upper Amazon valley are navigable—many of them for hundreds of miles—to smaller or larger steam craft during the greater part of the year, the receiving of supplies and the shipping of rubber do not constitute the serious problem which would be encountered in the exploitation of rubber forests available to-day elsewhere in the Amazon valley, whether in Brazilian, Peruvian, or Bolivian territory, barring the immense and rich forests of northwestern Matto Grosso, in the Guapore valley, few of which have so far been explored.

The Acrean and other southwestern regions offer, besides, two other advantages of importance to the more economical and thorough development of the business of extracting rubber which greatly contribute to the fame claimed for that territory in bearing such a relation to the world's future production of rubber as does to-day Kimberley to that of diamond mining; these are salubriousness and short flood seasons. As to the first, owing to the higher level of the regions, the humidity and dampness are not excessive, as in the middle and lower valleys, and the heat is likewise much less intense. In fact, the humidity and heat prevailing in the southwestern zones are not any worse than the hot, sultry weather experienced in New York during a "hot wave."

As to the dreadful yellow fever we hear so much about, and which people have come to associate with the Amazon river, there is none lurking in those forests to claim the first white man venturing there, as some "tourists" and "book reader travelers" would make us believe. The little yellow fever there is is confined to the cities in the lower valley. If malarial and other fevers—as well as *beriberi* and such other maladies as will attack a weak and debilitated system—do claim some victims among the colonies of *caboclos* or half breed Indian trappers in a *seringal* (rubber estate), it is principally due to the miserable conditions of sanitation, habitation, and alimentation existing under the administration of the average owner himself. These evils could easily be remedied through the application of modern methods of exploitation.

The Acrean and other southwestern regions are, as a whole, salubrious, and this is an essential requisite to the development of the rubber industry upon modern and extensive lines, such as only foreign capital and enterprise can successfully accomplish. And, as to the second of these additional advantages, it is obvious that the duration of the flood season must have an important bearing upon the total crop of a *seringal*. During the winter or rainy season, the rising rivers will flood the forests, and all operations on the *seringal* must remain at a standstill until the heavy rains have ceased and the waters subsided.

In the lower and middle valleys the rainy season begins in November and terminates in March, and in the upper valley it commences in September and ends in December, whereas in the southwestern regions the rains take place from June to October. The copious rains attending the winter there are sufficient in themselves to cause a cessation of all the labors in a rubber estate; and as both the rainy season and the duration of the floods are considerably lighter and shorter in the southwestern expanse the upper Amazon valley than in the middle and lower valleys, the Acrean and all adjacent territory lying south and southeast of it offers a much longer working season, which means more money to the rubber operator.

This apparent stagnation in the rubber industry would undoubtedly have continued to exist indefinitely and made its consequences the more lamentably felt, had it not been for the great impetus given it by the opening up and exploring of the Acre territory and the consequent exploitation

and development of its immensely rich rubber forests, as well as those in the vast regions lying south and southeast of it, by Brazilian, Bolivian, and Peruvian interests as well as German, English, and American. This great beginning—which is already bearing valuable fruit—towards internationalizing the Amazonian rubber industry is largely due to the efforts and foresight of Governor Thaumaturgo de Azevedo.

While still governor of the state of Amazonas, several years ago, Coronel Azevedo foresaw the great future commercial value of the Brazilian Amazon valley to the rubber world, and not in vain did he devote all his energies and activities to bringing about the development of a territory which is destined to play so important a part in the commercial, industrial, and political expansion of the South American continent. It was Coronel Thaumaturgo de Azevedo who, at the head of the commission of limits with Bolivia, asserted Brazil's rights over the disputed territory of the Acre, in the face of the weak and faltering policy of his government. To him, and to Barão do Rio Branco, as well as to Governor Silverio Nery, Brazil owes her possession to-day of the valuable Acrean territory. The Acre has proved to be well worth to Brazil the expense she has incurred in indemnities and military expeditions, and in the complicated and serious disputes she has had over boundary matters with Bolivia on the one hand, and with American and English capitalists on the other, respecting the rights of exploitation of certain portions of the Acrean territory then under controversy between Brazil and Bolivia. The latter, as will be remembered, granted large concessions to an Anglo-American syndicate, to which Brazil objected on grounds she deemed legal as well as necessary for self preservation, in so far at least as her rights over the great Amazonian waterways were concerned. This was one of those incidents to be greatly lamented, inasmuch as the lack of judgment and foresight on the part of Bolivia, coupled with the overzealousness displayed by Brazil, destroyed one of the greatest opportunities offered for the eventual development of the rubber and other rich industries of the Amazon valley upon such an extensive scale and upon such lines of operation as would have immensely benefited both countries financially, commercially, and politically.

No doubt, however, other and possibly greater opportunities may yet present themselves, through individual effort and enterprise. Such is the world's pressing demand for rubber that means must and will be devised for utilizing the immense resources of the Acre. C. E. WELLENKAMP.

THE RUBBER HANDLED AT MANAOS.

THE following statistics of the arrivals of rubber at Manáos from all sources, during the calendar year 1903, are supplied by the Associação Commercial do Amazonas—all in kilograms:

FROM—	Fine.	Medium.	Coarse.	Caucho.	Total.
Amazonas state	10,894,058½	245	2,025,194½	2,681,326½ =	15,600,824½
Mattogrosso	90,711	..	16,128	4,637 =	111,476
Venezuela	69,603	..	25,513	.... =	95,116
Peru	139,338	794	20,940	11,192 =	172,264
Bolivia	427,916½	..	72,812	23,106½ =	523,835
Acre	1,917.957½	..	202,901½	158,896 =	2,279,755
Total entries	13,539,584½	1,039	2,363,489	2,879,158 =	18,783,270½
Total, 1902	12,389,978	1,586	2,228,877	2,252,077 =	16,872,518

SOURCES OF RUBBER PRODUCTION OF AMAZONAS.

RIVERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
Rio Purus	3,633,264	153	608,213½	1,324,746 =	5,566,376½
Rio Juruá	3,590,814	..	561,083½	1,056,785½ =	5,208,683
Rio Madeira	1,609,661½	..	334,928½	245,092 =	2,189,682
Rio Solimões	774,145½	..	176,622½	31,629 =	982,397
Rio Javary	676,050	..	126,477½	11,938 =	814,465½
Rio Negro	448,471	49	165,913	.... =	614,433
Lower Amazon	59,323½	..	23,144	3,030 =	85,497½
Rio Jutahy	54,939	..	16,868	6,716 =	78,523
Rio Japura	23,964	25	4,470	1,330 =	29,789
Rio Icá	12,876	..	4,724	60 =	17,660
Rio Branco	10,550	18	2,750	.... =	13,318
Total, 1903	10,894,058½	245	2,025,194½	2,681,326½ =	15,600,824½
Total, 1902	9,590,744	1,370	1,820,688½	2,185,173 =	13,597,975½

It will be noted how small is the proportion of medium (*entrefino*) rubber in the arrivals at Manáos. The proportion becomes much larger, however, after the classification at that port, as will appear from the following details of exports from Manáos during 1903:

RUBBER PRODUCED IN AMAZONAS STATE.

To—	Fine.	Medium.	Coarse.	Caucho.	Total.
New York	4,239,382	1,226,853	1,119.171	1,031,489	7,616,895
Liverpool	3,375,528	613,331	702,566	1,349,733	6,041,158
Havre	524.905	58 499	88.569	201,783	873,756
Hamburg	186.548	47,172	45,461	1,017	280,198
Antwerp	57,440	800	....	....	58 240
Genoa	8.571	13.033	1,770	....	23.374
Pará	46	....	233	....	279
Total	8,392,420	1,959,688	1,957,770	2.584,022	14,893,900

TOTAL EXPORTS, INCLUDING TRANSIT RUBBER.

To—	Fine.	Medium.	Coarse.	Caucho.	Total.
New York	5,074 961	1,250,921	1,264,419	1,058.353	8,648,684
Liverpool	3,762,917	614,781	761,417	1 454,..	6.593.307
Havre	574,823	58.499	100.660	203,073	937.055
Hamburg	199.706	47,362	47,300	1,017	295,385
Antwerp	57.440	800	. ..	....	58,240
Genoa	8 571	13,033	1,770	....	23,374
a Pará	991,096	....	121,563	40,696½	1,153.355½
Total	10,669 514	1,985 396	2 297,129	2,757.361½	17,709,400½

[*a* Mainly from the Acre and Bolivia.]

These figures do not embrace rubber shipped direct from Iquitos, from which source 2,058,466 kilograms passed Pará during the calendar year 1903. Nor do they include certain shipments of rubber produced in the state of Amazonas below Manáos, and going to Pará or direct to Europe, the whole amounting to 49,625 kilograms.

Statistics are not available of the exports of rubber from Pará, exclusive of what was received from up the river, but a combined statement for Pará and Manáos shows:

Pará and Manáos stocks, December 31, 1902.....*kilos*	1.092,000
Combined receipts	31,300,942
Aggregating	32,392,942
Combined exports	31,094,942
Stocks, December 31, 1903	1,298,000

If there be subtracted from these exports the total figures for the movement through Manáos, including the direct shipments from Iquitos, and the small amounts from Amazonas ports below Manáos, there remains 11,277,450 kilograms to be regarded as the produce of the state of Pará—an increase of 425 tons over the production for 1902, as arrived at by a similar calculation.

RUBBER blankets are being recommended throughout northern Ohio as a cure for bronchial and lung trouble, and because of the recommendation being made by many physicians the sale of rubber blankets has largely increased. They are used in sleeping out of doors.

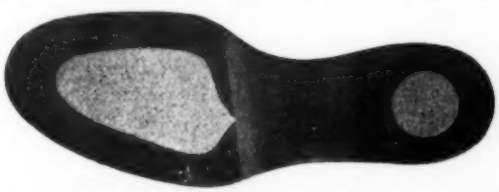
NEW GOODS AND SPECIALTIES IN RUBBER.

THE "IMPERIAL" WATER BAG.

A SLIGHT defect in a hot water bag might be the means of an injury so serious that too great care and discrimination cannot be made in their choice by the purchaser, or too much care and thought be expended in their manufacture. A seamless bag lessens the possibility of unexpected leakage and the one illustrated herewith belongs to this class. Another advantage is that it has a hard rubber neck, which does not absorb heat, and consequently does not burn the hands or otherwise make the handling a matter of much discomfort. It also has a grommet end which many will consider an additional advantage. Bags of this make, also with the hard rubber neck, are supplied for fountain syringes. [The Imperial Rubber Co., Beach City, Ohio.]

"RIVAL" HEELS AND SOLES.

A FEATURE long sought by manufacturers of rubber heels and soles has been the non slipping quality. The ease of walking and the buoyancy of movement afforded by the rubber heel, many people have been obliged to forego on account of the fear they entertained of slipping. This very desirable non slipping feature has been developed in the "Rival" heels and soles, and safety in walking is thus assured. They are composed of a black, tough rubber stock with a center of white, pure rubber and ground cork, the latter producing the desired result, that of ensuring the safety of the wearer. Durability is also guaranteed. These qualities combine to remove from the rubber heels and soles the last vestige of prejudice that can justly be felt against them. [Ajax-Grieb Rubber Co., Trenton, New Jersey.]



THE "EVER-KETCH"—A BALL NOVELTY.

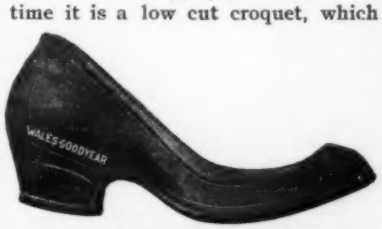
THIS is one of the newer games and is creating no end of fun not only among children but grown-ups as well. It is equally well suited to a pleasant evening at home or a public festival. There is a bit of skill required but not enough to make it arduous or irksome, and it affords a surprising amount of fun. It consists of a slender handle, say 14 inches in length and somewhat larger and rounded at one end. An aperture in the rounded end is large enough to hold a ball, which is attached to that end by a cord. As will readily be seen, the game consists of fitting the ball to the opening provided for it, and the skill lies in raising the holder with just enough force to allow the ball to swing into it. [Ever-Ketch Novelty Co., Indianapolis, Indiana.]

THE BOSTON TIRE TREAD.

THE illustration relates to a new type of tire protector that has been put upon the market. It differs from other types in that it does not depend on inflation, friction, or external means to hold it in position to the tire, but is mechanically attached to the casing lugs. Without recourse to vulcanizing, by the use of a series of lugs comprising special plates that firmly clasp the tread to the casing at the center line of the tire, this result is accomplished. This does not lessen the resilience as the center line is not subject to material change of dimension, such as would naturally produce internal stress or strain. In attaching these treads the tire is removed from the rim and brought to an oval shape, when the tread, which is of slightly less circumference than the tire, may be crowded on and brought to its proper position. The casing is then pierced at the lug holes and the screws and plates inserted and then the whole is clamped up tight. The inner tube is protected from the inner plate by a heavy protective lining, and heating and abrasion of the casing from the under side of the rivet studded tread is effectually prevented by an interposed lining. Some of the claims made for it are that it will prevent puncture and skidding, will give more speed in mud and snow, will save tires, and requires but a short time to apply. [The Boston Tire Tread Co., No. 45 Stanhope street, Boston.]

THE "ELITE" RUBBER.

ANOTHER novelty in footwear has projected itself into public favor. This time it is a low cut croquet, which is known as the "Elite." It is dainty and durable and seems to have a future in store as well as a present assured. It is cut to come just above the sole and does not in the least disturb the comfort of the wearer's foot, and at the same time is natty in appearance. While it has a bit more rubber than the foothold in its makeup, the advantage claimed for the "Elite" is that it protects the heel of the shoe from the mud as well as the sole from dampness. It is especially desirable for summer and autumn wear, and is made on the Wales-Goodyear popular "English," "Gem," and "Cuban" heel lasts, in S, M, and F widths. [Wales-Goodyear Shoe Co., Naugatuck, Conn.]



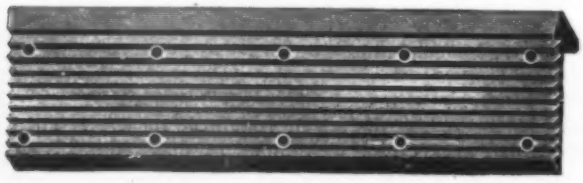
COMPLEXION BULB.

BY comparison with other methods and means employed to stimulate circulation, the rubber complexion bulb has been conceded a foremost position. The manner of manipulating it is easy, it being placed against the face and hastily withdrawn, the suction thus obtained acting as a stimulant to the skin. The soft rubber in contact with the skin is soothing without the unpleasant effect sometimes following the application of any foreign substance. The bulbs are preferred by some to the brush as the effort of using them is somewhat less wearying. The bulbs are used especially for the face and are sometimes employed with satisfactory results on the electrical massage machines. They are light and delicate in construction. [The Mitzel Rubber Co., Carrollton, Ohio.]

RUBBER RUG MATS AND STAIR PLATES.

IT is interesting to note to what an extent rubber is being utilized in the appointments of the household, especially in the accessories that go towards simplifying the problems of the housewife and lightening her burdens. One such specialty is the rubber rug binding. So long it has been a question what to do to prevent the slipping of rugs over the polished floor surface, but this has been surely and satisfactorily settled in the use of the rug binding. The Acme Rug Corners also serve the same purpose. These are beveled on two sides and make a neat finish for the rug and are also a protection to its corners. These mats are perforated ready for sewing, as is the binding. The rubber stair plates are also a great promoter of safety and of ease in ascending and descending stairs. When these plates come with the nosing attached they are especially advantageous and much neater in appearance. [The John Kroder & Henry Reubel Co., New York.]

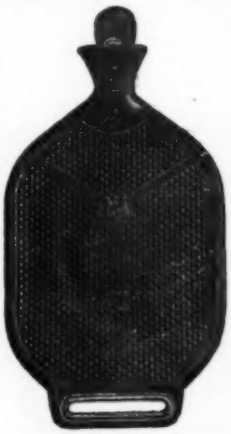
RUBBER STAIR PLATES.



RUBBER RUG BINDING.

NO-SEAM HOT WATER BOTTLE.

THE advantage of the seamless construction of hot water bottles is too obvious for comment. As every one knows, the most vulnerable part of the hot water bottle as originally made, was the seam, this being where leaks occurred, if anywhere. Of course the idea of a seamless bottle is not new, but the illustration herewith relates to an attractive new line of goods in this class, marketed for several months past by The Pure Gum Specialty Co., (Barberton, Ohio). The design shown is covered by a patent granted to E. J. Schultz. While appearance is not a necessary factor in this article of household comfort, that factor is not overlooked by most purchasers and in this regard this one would seem to be well towards the front.



PNEUMATIC BASEBALL.

AN improvement in baseballs, perhaps the greatest one in a long time, is the pneumatic ball. It is made in the regulation size and weight and has the endorsement of famous players. The compressed air in the center keeps the ball hard and perfectly round, not allowing it to get soft from batting. Besides having all the requiremnents laid down by the American and National leagues, the Pneumatic baseball has also the distinctive feature of being worth recovering, and not only that, but of being as good as new after that process has been undergone. In fact, the balls are referred to as being worth several covers. The inner wall comprises a composition of gelatine through which the air is put in by means of a hollow needle. When the needle is withdrawn the puncture in the gelatine wall closes, permanently sealing the air. A wall of strong thread gives strength to the ball, and its outer wall or cover is the best horse hide, hand sewed. [The Goodyear Tire and Rubber Co., Akron, Ohio.]

A PNEUMATIC CAR DOOR BUFFER.

AN unusual use for pneumatic cushions is found in the railway car door invented by Charles S. Sergent of Brookline, Massachusetts, and in use by the Boston Elevated railroad. The side and end doors of the cars are closed pneumatically and against a hollow rubber cushion which runs from the top of the door to the bottom and forms a perfect packing, and indeed a very resilient buffer.

JAVA exported 14,655 kilograms of rubber during the first quarter of 1906, against 6381 kilograms for the first quarter of 1905.

RECENT RUBBER PATENTS.

UNITED STATES OF AMERICA.

ISSUED OCTOBER 2, 1906.

NO. 832,038. Pneumatic valve. H. A. Carlsson, Bridgeport, Conn.

832,039. Solid rubber tire. E. D. Carr, Akron, Ohio.

832,170. Tire tool. E. C. Shaw, Akron, Ohio, assignor to The B. F. Goodrich Co.

832,277. Process of manufacturing overshoes. S. Schwarzschild, assignor of one-third each to A. Vogt, E. G. Pfahl, and A. E. Vogt, all of Rochester, N. Y.

832,278. Process of manufacturing overshoes. *Same.*

832,375. Pneumatic heel cushion. W. L. Gordon, Deal, N. J.

832,453. Tire case. F. E. Bowers, New Haven, Conn.

832,468. Hoof pad [with resilient air chamber beneath the frog]. E. Fitzgerald, Chicago.

832,475. Window cleaner. E. M. George, Grand Forks, British Columbia.

832,514. Attachment for elastic tires. [Protector comprising a metal sheath.] W. H. Violett, Meeker, Colo.

832,550. Combined insole and retaining device. J. J. Lepper, assignor of one-half to E G. Raeuber, both of Milwaukee, Wis.

Trade Marks.

5,161. American Hard Rubber Co., New York. The word ROYAL. For hard rubber syringes.

11,268. The Pneumatic Rubber Sole and Heel Syndicate, Ltd., Leicester, England. The word AEROLITE. For soles, heels, and protectors (for boots and shoes).

15,388. W. S. Nott Co., Minneapolis, Minn. The word STAR. For rubber boots and rubber shoes.

17,731. Parsons & Parsons, Cleveland, Ohio. For rubber collars.

21,697. The Neverslip Mfg. Co., New Brunswick, N. J. Red color applied to the tips of a horseshoes.

ISSUED OCTOBER 9, 1906.

832,610. Permanently pliable and adhesive compound for insulating and other purposes. R. L. Johnstone, Glenridge, N. J.

832,617. Cushion key for typewriters. G. W. Munson and T. F. Hodgkiss, New York, assignors to Munson Supply Co.

832,702. Vehicle wheel tire. A. T. Sherman, Detroit, Mich.

832,781. Hoof pad. Joseph M. Doke, Fostoria, Ohio.

832,841. Compound for sealing punctures in pneumatic tires. D. Charleston, Melbourne, Australia.

832,864 Comb. D. C. Lockwood, Newark, N. J., assignor to Rubber and Celluloid Harness Trimming Co.

833,115. Vehicle wheel. H. Bell, Stamford, Conn.

833,136. Surgical implement. A. Littauer, Brooklyn, N. Y., assignor to W. N. Sharp, Chicago.

Trade Marks.

20,917. The S. & L. Rubber Co., Chester, Pa. The letters S. & L. associated with rubber recovered from waste and commonly known as reclaimed rubber.

ISSUED OCTOBER 16, 1906.

833,183. Vehicle wheel [with rim for an elastic tire]. L. Sturges, Chicago.

833,199. Appliance for securing the rims and [pneumatic] tires of vehicle wheels. C. B. Cave-Brown-Cave, Chesham, England.

833,234. Pneumatic tire shield [consisting of a flexible armor]. J. H. Lowrey, Neola, Iowa.

833,397. Vehicle wheel [with elastic tire]. F. J. Lancaster, New York city.

833,398. Vehicle wheel. *Same.*

833,520. Vehicle wheel rim [with detachable flange; for pneumatic tires]. D. D. Griffiths, assignor of one-half to E. E. Laughlin, both of Chicago.

833,633. Device for preventing seasickness on ships [comprising an air cushioned chair]. H. Rinne, Essen-on-the-Ruhr, Germany.

Trade Marks.

5,164. American Hard Rubber Co., New York city. The words GOODYEAR 1851. For hard rubber combs.

8,840. Revere Rubber Co., Boston. The words BLACK CROSS. For belting and machinery packings.

8,847. Revere Rubber Co., Boston. The word SILVERTOWN. For belting and hose.

12,438. The Cravenette Co., Ltd., Bradford, England. The word DUKBAK. For waterproofed fabrics.

13,080. Revere Rubber Co., Boston. The letters A. C. For horseshoe pads.

20,430. Standard Underground Cable Co., Pittsburgh, Pa. The words TIP TOP. For insulated wires and cables.

20,762. Pennsylvania Rubber Co., Jeannette, Pa. The word CENTURY. For sheet packing, rubber gaskets, and hose.

ISSUED OCTOBER 23, 1906.

833,757. Trace [for harness; a flexible steel cable is covered with rubber molded upon it]. S. Shisler, assignor to The Cable Trace Co., Cleveland, Ohio.

833,981. Detachable pneumatic tire. C. S. Scott, Cadiz, Ohio.

834,015. Rubber tire. [Composed of a tread portion made of resilient rubber, a base portion made of firmer and less resilient rubber, in which a plurality of plies of open work metal fabric is embedded, and a substantial zone of rubber of less resiliency than the tread, which is vulcanized between the tread and the base.] A. H. Marks, assignor to The Diamond Rubber Co., Akron, Ohio.

834,025. Storm cover for vehicles. H. D. Purcell, Washington Courthouse, Ohio.

834,074. Hose. J. S. Patterson, assignor to J. S. Wilson, Chelsea, Mass.

834,185. Air pressure supply apparatus for atomizers. C. E. Campbell, assignor to The Faultless Rubber Co., Ashland, Ohio.

Trade Marks.

8,693. A. J. Reach Co., Philadelphia. The word REACH in a design. For various sporting goods.

9,534. Standard Underground Cable Co., Pittsburgh, Pa. The word STANDARD. For insulated wires and cables and insulating compounds.

18,841. John Bister, New York city. The word PLUVETTE. For mecerized cotton cloth covered on one side with rubber.

19,674. The Akron Rubber Shoe Co., Akron, Ohio. The word STRAIGHT-LINE underlined. For rubber boots or shoes.

ISSUED OCTOBER 30, 1906.

834,259. Artificial ear drum. J. B. Campbell, New York city.

834,351. Method of making rubber hose. W. H. Adams, assignor of one-half to H. U. Beck, both of Montreal, Quebec.

834,373. Fountain pen. Frank O. Ellis, Philadelphia.

834,451. Vulcanizing apparatus. J. R. Austin, Mishawaka, Ind.

834,541. Fountain pen. W. A. Welty, Waterloo, Iowa.

834,542. Fountain pen. *Same.*

834,608. Mold for rubber tires. W. Dunbar, Akron, Ohio.

834,623. Process of recovering rubber from rubber waste. W. A. Koneman, Chicago.

834,712. Truss. F. Crater, assignor to himself and T. B. Allison, both of Parsons, Kans.

834,744. Fountain pen. J. J. Mead, New York city.

834,769. Rubber-like gum. B. F. Spencer, Denver, Col., assignor to the Western Parent Crude Rubber Co., Santa Fe, a corporation of New Mexico.

Trade Marks.

777. The Stork Co., Boston. The word STORK. For textile waterproof fabrics.

GREAT BRITAIN AND IRELAND.

PATENT SPECIFICATIONS PUBLISHED.

The number given is that assigned to the Patent at the filing of the Application, which in the case of those listed below was in 1904.

* *Denotes Patents for American Inventions.*

[ABSTRACTED IN THE OFFICIAL JOURNAL, SEPTEMBER 26, 1906].

11,420 (1905). Exercising apparatus. I. Belvoir, New Southgate, Middlesex.

11,422 (1905). Hose pipes. J. E. Hopkinson, Pará Rubber Mills, West Drayton, Middlesex.

11,820 (1905). Check valves for pneumatic tires and the like. C. Nielsen, Copenhagen, Denmark.

11,470 (1905). Armor for electric cables. W. Bacon, Grappenhall, Lancashire.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 3, 1906.]

11,880 (1905). Vehicle wheels [constructed with two parallel flat rings between which fit tread-blocks of wood pressed outwards by a pneumatic or other resilient cushion resting on a free ring]. J. N. B. Moore, Bourneside, Suffolk.

11,947 (1905). Stoppers [for bottles containing alkalies, acids and other chemicals, and for laboratory apparatus]. R. R. Mumford, London.

12,120 (1905). Elastic tire [the base of which is formed with a circumferential groove in which fits an inextensible core consisting of plies of wires separated by layers of rubber]. J. V. Worthington, London.

12,184 (1905). Cover for elastic tires [formed of layers of leather]. C. Rossel, Sochaux, France.

12,203A (1905). Dental plates [of two superposed layers of rubber only one of which is colored]. L. Bilertsen, Paris, France.

12,243 (1905). Horseshoe. R. Pfeffel, and B. Beuchler, Forst, Prussia, Germany.

12,269 (1905). Shower bath apparatus. C. P. T. Roux, Niort, France.

*12,272 (1905). Eraser [for lead pencils]. A. F. W. Bowen, San Francisco, California.

12 358 (1905). Bust improver. S. A. Bhisey, Essex road, London.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 10, 1906.]

12,380 (1905). A lever for removing and replacing pneumatic tires. A. Deschamps, Paris, France.

12,447 (1905). Abdominal belt or truss for prevention of seasickness. E. A. Davis, Cookshire, and C. C. Knight, Sherbrooke, Canada.

12,470 (1905). Horseshoe. H. Hennen, Düsseldorf, Germany.

12,500 (1905). Interchangeable tips for boot heels and shoes. W. Barber, London.

13,622 (1905). Filling nozzle for hot water bags. W. Currie, Edinburgh.

12,633 (1905). Tire segments fitted in holders, elastic cushions being placed between holders and base of rim pocket. W. B. Hartridge, London.

12,711 (1905). Pneumatic tire with special tread. W. Bagguley, Lanarkshire.

11,711A (1905). Tires with rubber strips in air chambers to exclude dust. *Same.*

12,728 (1905). Tread protector for tires. C. B. Burdon, London. (Société Anonyme des Pneumatiques Cuir "Samson," Paris, France.)

12,768 (1905). Method of repairing pneumatic tires by means of leather patches and rivets. G. Müller and A. Bewig, Brunswick, Germany.

12,832 (1905). Disk wheel adapted for pneumatic tires. E. Martin, London.

12,859 (1905). Process of obtaining raw rubber from chopped rubber plants by crushing them under water and extracting raw material. [A mixture of acetone and amyl. methyl, and ethyl alcohol is used to separate resin, oil, wax, etc. The rubber is then washed and dried and the solvent separated from the resin by distillation.] Baron K. von Stechow, Wiesbaden, Germany.

[ABSTRACTED IN THE OFFICIAL JOURNAL, OCTOBER 17, 1906.]

12,938 (1905). Spring wheel around the axle of which is placed a perforated rubber pad for use in case the spring should break. J. B. LeMaitre, Birmingham.

12,960 (1905). Closet seat guard. A. Hebert, Vevey, Switzerland.

12,985 (1905). Vehicle wheel with special means for retaining a pneumatic tire. R. B. Charlton, Newcastle-on-Tyne.

13,055 (1905). In fixing rubber to an iron base, for making rollers, the intermediate layer of rubber is used made of hard rubber. The object of this invention is to prevent separation of the two rubber layers by the formation of under cut projections, ledges, etc., on the hard rubber. W. Struck, Berlin, Germany.

13,056 (1905). Solid rubber tire. *Same.*

13,197 (1905). Method of attaching rubber tires. *Same.*

*13,207 (1905). Composition consisting chiefly of rubber with metallic wool interspersed, for making shoes, soles, heels, tires, etc. J. P. Crane, Chicago, Illinois.

13,224 (1905). Solid elastic tire. A. T. Collier, St. Alban's, and Reilloc Tyre Co.

13,315 (1905). Pneumatic tire. [Relates to anti skidding bands of leather, holding metallic rivets or studs]. J. B. Brooks and J. Holt, Birmingham.

13,339 (1905). Tire made of a series of resilient blocks. F. Toni, London.

13,392 (1905). Elastic tire [a wheel is provided with a rubber tire molded on the rim, the wheel itself being used as the inner part of the mold with two quarter sections for the top and bottom so as to make a complete mold, which is closed by hydraulic pressure]. W. E. Rowcliffee, Manchester.

13,443 (1905). Vehicle tire [formed of blocks of wood which bear upon rubber cushions or metal springs]. J. B. Le Maitre, Sparkbrook, near Birmingham.

13,457 (1905). Stoppers. C. Bonafede, Paris.

THE FRENCH REPUBLIC.

PATENTS ISSUED (WITH DATES OF APPLICATION.)

363,646 (Feb. 26, 1906). F. Loustaunau. Removable rim.
363,700 (Feb 3). J. Ramb. Inflatable hamper.
363,719 (Feb. 16). C. M. Montezin. Elastic tire.
363,726 (Feb. 26). A. von Luede Solid tire fastening.
363,822 (Mar. 3). H. F. Marie. Elastic tire.
363,830 (Mar. 5). V. Scholz. Extracting rubber from plants.
363,828 (Mar. 5). O. Patin. Elastic tire.
363,930 (Feb. 26). A. A. C. Desletre. Spring wheel.
363,961 (Mar. 8). J. M. Shepard. Pneumatic tire.
364 027 (Mar. 10). J. Bessoneau. Pneumatic tire.
364,675 (Mar. 13). L. Roland. Rubber substitute.
364,076 (Mar. 13). L. Roland. Elastic tire.
363,989 (Mar. 9). P. Pechaubes. Pneumatic valve.
364,193 (Feb. 8). G. O. Heine. Antiskid tire.
364,273 (Mar. 15). G. Sinnott. Spring wheel.
364,170 (Mar. 14). J. Jacobson. Artificial flowers.
364,271 (Mar. 15). D. Benko. Suspenders.
364,323 (Mar. 17). L. Pilla. Spring wheel.
364,142 (Mar. 6). H. E. Bragg. Tire improvements.
364,289 (Mar. 15). Societe Decultil & Cie. Elastic tire.

[NOTE.—Printed copies of specifications of French patents may be obtained from R. Bobet, Ingenieur-Counsell, 16 avenue de Villiers, Paris, at 50 cents each, postpaid.]

MERIT OF THE HOT WATER BAG.

THE hot water bag has helped to dissipate at least one popular medical fallacy, according to Dr. Leonard Keene Hirshberg, in an article in the *American Magazine*. It has driven out what he calls "our old soggy friend, the flaxseed poultice." The point is that water is really the active agent in thousands of cures credited to other things. The flaxseed poultice used to be prescribed "for a hundred and one infantile complaints—swollen jaws, bee stings, bruises, 'bumps' on the cranium, boils, sprains, sore muscles, and so on. It was sloppy, hot, and unpleasant, but we submitted to its loathsome embraces because we knew that it oftentimes cured. And yet it would have cured just as often if it had been made of bran or sawdust.

"The thing of chief value in the flaxseed poultice—and in nearly every other sort of poultice of days gone by—was the heat. The heat in the water alone, without the flaxseed, would have cured just as quickly. The sole virtue of the meal lay in the fact that it enabled the water to retain a comparatively high temperature a bit longer than plain water might have done. To-day we enclose the water in a rubber bag and do without the flaxseed. The rubber bag is dry, handy, and clean. The flaxseed poultice was wet, uncomfortable, and very dirty."

THE RUBBER INDUSTRY IN THE CENSUS.

THE results of the 1905 census of manufactures in the United States have been published, in the shape of a series of bulletins, with the effect of showing a marked increase in the amount of capital and number of wage earners employed, and in the value of products, as compared with the last regular decennial census (1900). The increase shown under these heads in the India-rubber industry is particularly marked, few other industries having shown an equal rate of growth. The figures given in the 1905 census relate to the year ending December 31, 1904, and the enumeration doubtless has been the most thorough piece of work of the kind yet accomplished, though of course no census can be absolutely accurate. Thus in connection with rubber footwear, the statement of value of products in the new census is unsatisfactory, but from the other details relating to this industry, which are not questioned, it is certain that the shoe interest has grown very largely.

The figures in the accompanying tables have been compiled from Bulletin 57 of the 1905 census, which embraces, for the purpose of comparison, figures from the last three decennial censuses. The rubber industry is classified under three heads: Belting and hose—rubber; Boots and shoes—rubber; and Rubber and elastic goods. No indication is given of what may be embraced under the latter head, but presumably the whole field of rubber goods production not included in the first two classes—except insulated wire. So far as can be judged from these bulletins, reclaimed rubber is included.

According to the tables herewith the total value of products as shown by the four censuses has been as follows:

1880	$25,310,648
1890	42,853,817
1900	99,880,693
1905	148,015,391

There appears in Bulletin 53, devoted to manufactures in Massachusetts, a note which should be considered here. The value of rubber footwear produced in that state in the last census year is reported at $39,034,549, against $16,490,015 in 1900—a gain of about 137 per cent., whereas the number of wage earners in this branch increased only 46 per cent. and the amount of wages only 53 per cent. during the five years. The Bulletin says in regard to value of products:

It is doubtful, however, if so great an increase was actually made in the industry. It is probable that, instead of reporting the value of the products on a basis similar to that used in 1900, some of the reports were prepared on the basis of a list price, subject to the large discounts peculiar to the industry, the result of which would be an excessive value of products for 1905.

As will be seen, the census office recognizes that the figures on the rubber shoe production are unsatisfactory. In discussing the matter with THE INDIA RUBBER WORLD the director of the census wrote:

The census office experienced much difficulty in obtaining satisfactory information concerning the value of products in this industry. A continuous effort was made throughout the year 1905 and even into 1906, to secure reports from manufacturers that could be accepted as entirely satisfactory. A few manufacturers declared that it was impossible to make an accurate report of the actual amounts received for products during the year, and that the values returned upon the census schedules were the only amounts that could be supplied from their records. Thus what we eventually secured appeared to be the best that could be obtained. It is our purpose to explain this condition clearly in the census reports, and perhaps in commenting upon the figures to refer to the fact that some trade discounts ought to be made to arrive at the actual value.

BELTING AND HOSE—RUBBER.

	1880.	1890.	1900.	1905.
Number of factories	2	17	18	19
Capital	$285.000	$5,270,068	$5,493 885	$13,240.273
Salaries paid	....	160,748	33[illegible].319	807.[illegible]48
Average No. wage earners.	364	1.835	1,721	3,698
Total wages	$ 13[illegible],721	$ 883,020	$ 918,191	$ 1,804,902
Miscellaneous expenses	....	282,543	234,730	1,571,691
Cost of materials	863 000	3,479,538	4,075.702	9,089,786
Value of products	1,085,000	5,512,840	6,169,044	14,954,186

BOOTS AND SHOES—RUBBER.

	1880.	1890.	1900.	1905.
Number of factories	9	11	22	22
Capital	$2 425,000	$17,790,970	$33,667.533	$39,441,826
Salaries paid	....	153,802	597,239	874,001
Average No. wage earners.	4,662	9,134	14,391	18,991
Total wages	$1,469.038	$ 3,813,073	$ 6,426 579	$ 8,866,806
Miscellaneous expenses	....	943,918	2,089 154	3,215,373
Cost of materials	6,023 053	11,650,787	22,682,543	32.000,464
Value of products	9,706,724	18,632,060	41,089,819	70,065,296

RUBBER AND ELASTIC GOODS.

	1880.	1890.	1900.	1905.
Number of factories	93	139	261	294
Capital	$ 6,284,187	$13,703,787	$39,302,353	$46,297,537
Salaries paid	....	852,290	2,215,597	2,857,537
Average No. wage earners.	6,763	9,183	20,404	21,184
Total wages	$ 2,450,672	$ 3,663,976	$ 8,081,803	$ 9.412,368
Miscellaneous expenses	....	1,133,182	2,805,200	6,516,272
Cost of materials	9,641,167	11,113,528	33,482,314	38,912,226
Value of products	14,518,924	18,708,917	52,621,830	62,995,909

MASSACHUSETTS.

THE figures which follow are compiled from the 1905 census bulletin devoted to Massachusetts:

	Boots and Shoes—Rubber.	Rubber and Elastic goods.
Number of factories	7	47
Capital	$14,844,588	$10,948,266
Salaries paid	287,002	600,646
Average number wage earners	7,674	5 003
Wages paid	$ 3,754,001	$2,2 8,141
Miscellaneous expenses	1,387.049	1.158,158
Cost of materials	13,178,270	8,828.556
Value of products	39,034.549	14,088,471

[In the census office classification one Massachusetts factory is in the list "Belting and hose—rubber," and no details in regard to it are included in the above table.]

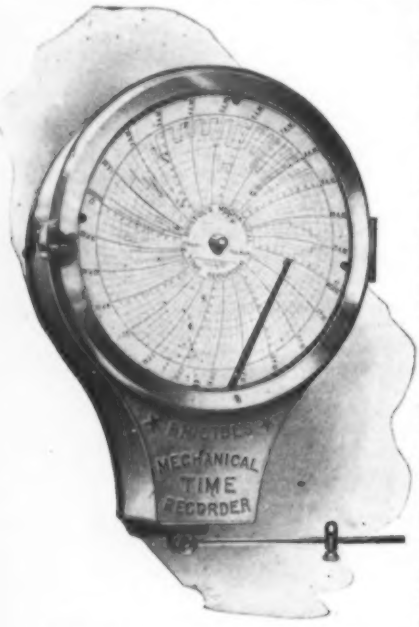
NEW JERSEY.

THE figures herewith, from the New Jersey bulletin, do not include details relating to the two rubber boot and shoe factories in the state:

	Belting and Hose - Rubber.	Rubber and Elastic goods.
Number of factories	12	24
Capital	$8,481,247	$3,788,359
Salaries paid	461,382	221,216
Average number wage earners	2 192	1.728
Wages paid	$1,112,049	$845,653
Miscellaneous expenses	949 326	398 502
Cost of materials	6,[illegible]41,765	2,9[illegible]9,2[illegible]9
Value of products	9,915,742	4,836,358

MECHANICAL TIME RECORDER.

AN instrument to make a graphic and accurate record of mechanical movements in mill and factory has been something that has long been a need of more or less import. This requirement has been met by the Bristol Co., of Waterbury, Connecticut, in their Mechanical Time Recorder, which they have been marketing recently. In construction it is a circular chart, 8 inches in diameter, revolving by clock work at uniform speed, movements being supplied for complete revolution once in 15 minutes; 1, 2, 3, 4, 6, 8, 10, 12, and 24 hours, and 7 days. In this way the speed may be selected to give best results under all commercial requirements. A pen arm is rigidly attached at its lower end to a shaft which is turned by a short arm projecting through a slot in the bottom of the case. The lever which is shown in the illustration is clamped to the short arm by a thumb nut, is adjustable, and can be clamped to the arm at any convenient angle. The parts are so regulated that the instrument is conveniently adapted to record motions of all amounts and directions. It can be used to record the rate of motion and position of sluice gates, turbine or engine governors, gate valves, etc. It is also adapted for recordingthe rise and fall of liquids in tanks, rivers, reservoirs, and fore bay. The distinct advantages in its use are at once recognized as varied and desirable. A use in rubber factories, very few of which are operated by water power, is in making a continuous record of the time when the rolls of mixing mills, for example, are in operation and a positive record of the time they may run empty.



METHOD OF MAKING FIRE HOSE.

A NEW invention of a method of making fire hose consists in partially curing a rubber tube, inserting this within a tube of cotton or other fabric, further curing the rubber tube and distending the same to adhere to the tube of fabric. A cooling medium is now passed through the rubber tube, after which a cold hollow mandrel is inserted. An outer coating of rubber is applied to the tube of fabric, said rubber being protected by a temporary covering of fabric to prevent overcuring, after which the inner and outer rubber surfaces are fully cured. The patentee is William H. Adams, formerly connected with the fire hose trade in the United States and now of Montreal, Canada.

SOME WANTS OF THE TRADE.

[355] A READER wishes to communicate with "some individuals who make a specialty of making brass moulds for rubber horse shoe pads." [Nobody makes brass molds for rubber horse shoe pads. Brass cannot be used for molding rubber for the reason that the sulphur in the rubber would unite with the copper during vulcanization, and the molded article would stay in the mold unless cut out with a chisel. THE EDITOR.]

[356] A prominent rubber gatherer desires to gain information respecting the cure of rubber in Ceylon. [Clippings were sent from THE INDIA RUBBER WORLD, showing a centrifugal machine made in London and also a coagulating machine made in the Federated Malay States. For your purpose it looks as if the London machine would be the better. I don't know whether you have a prejudice against adding water to the rubber milk, but my own experience leads me to believe that it does no harm at all. This Christy machine is now in use in Mexico, and is coagulating the milk of the *Castilloa* tree very nicely. The machine can be worked by hand, but the better way, of course, is to have a small gasoline engine to work it. I would suggest that you get one of these machines and put up a dry house and do the whole thing on a small scale until you discover exactly what the commercial scale should be. With regard to the use of acetic acid coagulation, that is done by adding a few drops to a pint of milk and letting it set in a shallow vessel over night. I don't advise that, if you can make the mechanical coagulation by the centrifugal machine do the work it appears to me much better.—THE EDITOR.]

[357] A reader of THE INDIA RUBBER WORLD would like to communicate with makers of Nigum.

[358] A large Southern mechanical rubber goods concern asks for addresses of the manufacturers of canvas belting.

[359] An Arkansas tent and awning company wish a list of makers of rubber toys, dolls, and balls.

[360] The following communication has been received from a foreign correspondent: "Permit us to inquire whether you are in a position to put us next to a machine factory which could make us machines for the manufacture of round woven cotton tubing (hose)."

[361] A German reader has heard of a vertical spreading machine bought in America and wishes information concerning it, also the name of any company that may manufacture such machines in this country.

[362] One or two of the ordinary processes for dissolving asbestos to a liquid or plastic state are asked for through the columns of THE INDIA RUBBER WORLD. The inquirer for these processes says: "I have a process for dissolving it to a plastic state but it does not leave it pure. It contains some of its group or family. What use might be made of the product?"

[363] Small rubber tubing in large quantities is desired by a correspondent. The size required would be about ⅛ inch in diameter and would not have to be of the best. It would be preferable that some of this tubing be made in colors, perhaps in red and green.

[364] Apropos of an article in THE INDIA RUBBER WORLD for November, we are requested to furnish names and addresses of those interested in the erection of factories for the production of Guayule rubber in Torreon, Mexico.

THE "V. D. K" RUBBER TAPPING KNIFE.

NO detail connected with the crude rubber interest, whether based upon forest resources or planted trees, is of more importance than the method of extracting the latex, since without good practice in this regard not only is the yield limited, but the life of the trees shortened unnecessarily. Two illustrations on this page relate to a new rubber tapping knife—The "V. D. K."—patented by Monsieur Gustav Van den Kerchhove, a Belgian rubber expert, who has given much study to this subject. The knife consists of a steel spike, with handle. At the end of the spike, which is slightly curved, is a plate with screw, and three movable blades with oblique edges. These blades can be regulated according to the thickness of the bark, and they can be used combined or singly, according to requirement. In fact, this knife, being a combination, does away with the accessory instruments needed in some other systems, since the blades may be used in six different ways, to suit the various kinds of work to be done. The knife can be regulated so as to make an incision in the bark only; it permits the making of the incision from bottom to top or *vice versa;* the use of the two small blades together, on small plants, allows the bark to be cleanly stripped in one cut, which bark, after the flow of the latex, can be replaced. The large blade, of special shape, enables incisions to be made with ease in the thickest barks. Simple cuts may be made, or the V shape, herring bone, or double herring bone, as desired. It will be noticed that all the blades, according to the work to be done, can be fixed in the handle in the opposite way.

THE "V. D. K." TAPPING KNIFE.
[Combination of the two small blades allowing the bark to be cleanly stripped in one cut.]

[The single small blade for the dressing of the incision.

INDIA-RUBBER GOODS IN COMMERCE.

EXPORTS FROM THE UNITED STATES.

OFFICIAL statement of values of exports of manufactures of India-rubber and Gutta-percha, for the month of September, 1906, and for the first nine months of five calendar years:

MONTHS.	Belting, Packing, and Hose.	Boots and Shoes.	All other Rubber.	TOTAL.
September, 1906...	$ 95,051	$147,384	$ 267,819	$ 510,254
January-August...	800,245	788 966	2,094,098	3,683,309
Total.....	$895 296	$936,350	$2,361,917	$4,193,563
Total, 1905... ...	856,493	944,494	2,127,300	3,928,287
Total, 1904.....	647,245	844,802	1,779,256	3,271,303
Total, 1903.....	633,744	626,592	1,855,756	3,118,092
Total, 1902..... .	513,636	718,759	1,467,000	2,699,395

GRADES OF WASTE RUBBER.

THE time has long since passed when worn out rubber shoes formed practically the whole of the material used for rubber reclaiming. To-day the rule is not to discard, when worn out, any kind of goods containing rubber. At the same time, it may be that the following list of grades of waste rubber handled by Mr. J. Schnurmann, an extensive London merchant in this branch, lately supplied by him to THE INDIA RUBBER WORLD, is much larger and more varied than many persons in the trade have seen. Mr. Schnurmann's location is Downham Mills, Tottenham, where his business gives employment to 150 workers. The list follows:

B. B. carriage tire stock.
Drab buffer stock.
Fine red stock.
Drab valves stock.
Crusty stock No. 1.
New black valve stock.
Automobile tires—with and without beads.
Cable stock—prime and second.
Toys and balls.
Drab and white hose strippings.
Red Codd's rings.
Hand stripped vacuums and air brake.
Hand stripped automobile tires.
Hand stripped water bottles.
New mackintosh cuttings—English manufacture.
Hand stripped pneumatic cycle covers.
Drab hose.
Old mackintoshes
Drab and white stock.
Prime floating inner tubes.
Semi floating inner tubes.
English cycle covers with beads.
Vacuum and air brake hose.
Floating stock.
Floating surgical stock.
Dress shields.
Floating cycle stripping—hand stripped.
Semi floating cycle stripping—hand or acid stripped.
Automobile tires.
Black hose.
Galoshes.
Cushion tires.
Red insertion.
Red automobile tubes.
Black buffers.
Drab insertion.
Red valves.
Crusty stock No. 2.
Solid cab tires.
Wireless Dunlop system covers.
Black valves
Black insertion.
Black matting.
Black waste. [beads.
Pneumatic stock.
North British cycle covers—no
Ordinary red stock.
Water bottles with insertion.
Vulcanized cement waste.
Unvulcanized cement.
Reclaimed mackintosh coat cuttings
P. O. (poor old) Gutta-percha strippings.
Gutta-percha buckets.
Ordinary Gutta-percha stock.
White waste.
Amiralty fire hose strippings.
Uncured friction waste.
Vulcanite shavings.
Vulcanite dust.

NEW TRADE PUBLICATIONS.

THE latest catalogue of THE MECHANICAL RUBBER CO. (Chicago Rubber Works) is written in readable style and well got up mechanically, besides which it is of interest throughout on account of the variety of goods so well described. Not only rubber belting, hose, and packings receive attention, but a great number of articles in molded goods and other specialties. [6″× 9.″ 145 pages.]

THE HARTFORD RUBBER WORKS CO., in a booklet entitled "The Supreme Problem in Tires," describe the detachable rim which they have developed so successfully during the past year or two. [3⅜″ × 6¼″. 24 pages.]

THE WIRE AND CABLE CO. (Montreal, Quebec) are sending out a little book, entitled "Electrical Compounds," which is a handy reference book of dimensions and other details in regard to such goods as they manufacture, including rubber covered wires and cables. [3¼″ × 6″. 68 pages.]

NEW YORK-BROADWAY RUBBER TIRE CO. (Brooklyn, New York), of which D. D. Martin is general manager, issue a catalogue of solid (internal wire and side wire) and Cushion Rubber Vehicle Tires. [5½″ × 8⅜″. 16 pages.]

THE RUBBER TRADE IN TRENTON.

BY A RESIDENT CORRESPONDENT.

THE Woven Steel Hose and Rubber Co. are enjoying the busiest time in their history. J. Russell Kelso, the general manager, states that they have many orders ahead and that the trade prospect for next season is exceedingly bright. They have recently put on the market a new type of armored hose which has already become a great seller. The armor is constructed of heavy convex wire made of special steel by the John A. Roebling's Sons' Co., of Trenton. The wire is tempered for this work. The convex shape of the armor is one of its chief characteristics, causing it to grip the hose in such a way that it cannot be moved from its place. The armor is applied to the hose by a special machine.

The same company have had marked success in the manufacture of hydraulic hose for a large electric company. The hose stood a test pressure of 3300 pounds to the square inch. The hose was designed to be used in forcing together certain parts of heavy electric machinery. To stand the unusually high pressure special couplings had to be designed, as the old form would not pass the test. The company met the situation by contriving a heavy coupling in which tapering wedges were used and the hose was held on these by heavy rings drawn up with large bolts. This invention has proved entirely effective. Manager Kelso says his company have received inquiries from Japan which it is expected will lead to a large trade opening in that country.

The Empire Rubber Manufacturing Co. also report a very busy trade. Mr. A. Boyd Cornell, secretary, says business looks unusually good. Every wheel in this big plant is turning. "You may say," said Mr. Cornell, "that we are looking for still better business next season."

The Empire Auto Tire Co. have placed on the market a red rubber inner tube for automobile tires called the Peerless. The inner tube is of high grade, strictly, and the company are having splendid success with it.

Mr. Wilson H. Harding, general manager of the Union Rubber Co., is another local rubber man who reports trade as unusually prosperous. "Booming" was his description. Everything indicates a heavy selling next season, he thinks.

The Consolidated Rubber Co. are having a big rush of orders on their two lip fruit jar rubbers. This was got out by this company and is a great help to the housewife. A lip projects on each side of the rubber. When it is desired to open a can of fruit the rubber is grasped by the lips and pulled from under the jar cap.

Mr. John S. Broughton, secretary and general manager of the United and Globe Rubber Manufacturing Cos., has been elected a member of the board of trustees of Mercer Hospital, the leading institution of its kind in Trenton. When seen this month Mr. Broughton said he was too busy looking after contracts and attending to the crude rubber market to talk about the details. That was taken to mean that the Globe companies were as busy as usual, if not a little busier. They are handling several large contracts for railroad companies.

The Ajax-Grieb Rubber Co. are erecting a new building in connection with the plant on North Olden avenue. It will be a one story structure, 35 × 90 feet, and will cost $1700. The new structure was made necessary by the consolidation of the Ajax and Grieb companies.

The Trenton Rubber Manufacturing Co., long noted for a fine grade of mechanical rubber goods, have taken up the manufacture of automobile tire tube. They are turning out two brands, "Triumph" and "Derby." They are made in gray or red rubber, respectively, and in all sizes. All are triple calendered, have absolutely no seams and are spiral wrapped. It is stated that a set of these tubes put on an automobile last spring, ran all summer without a single re-inflation, making a record of 5000 miles. The makers have received a letter telling of another set that also ran through the season without a re-inflation.

The New Jersey court of errors and appeals, at Trenton, on November 19, handed down a decision in the suit of the Eureka Fire Hose Co. *v.* The Eureka Rubber Manufacturing Co. of Trenton. The decision affirmed that of the chancery court, under date of June 6, 1905, awarding to the plaintiff company a limited injunction restricting the use of the word "Eureka" by the defendant company.

Three actions at law involving rubber companies are on the calendar of the term of the New Jersey court of errors and appeals, which opened at Trenton on November 20. The first is the appeal in the case of Quartermaster General C. Edward Murray and others against William H. Skirm, Jr. It was alleged in the suit that in September, 1903, the complainants got a judgment against Skirm for $3341.74, under which they levied on 239 shares in the Empire Rubber Manufacturing Co. owned by Skirm. The shares were sold at public sale and it was claimed did not bring sufficient to satisfy the judgment. Later Skirm got a judgment against these complainants for about $4000, and he claimed this should offset the judgment against him. In the court of chancery the decision was against Skirm and from this he has appealed.==Another case is the damage suit of Colon Fulton against the Grieb Rubber Co. This suit has been before the New Jersey courts about four years, and has become noted for the stubbornness of the contest over technicalities. Through an accident in the Grieb factory, Fulton, an employe, lost both hands in the machinery. He brought suit for heavy damages and was awarded a big verdict. The verdict was set aside as excessive. Then another verdict was obtained, but was overruled. This case is the appeal of Fulton from a decision against him on another phase of the case.==The third case is that of Cyril Johnson against the Hardman Rubber Co., of Belleville, N. J. The rubber company appeals from a decision of the Court of Chancery against it.

The court of errors and appeals has announced an opinion reversing the judgment of the Mercer county court in the suit of the Empire Rubber Manufacturing Co. against Morris & Co., manufacturers of duck at Yardville, N. J., and ordering a new trial. The case was one of damages claimed by reason of alleged breach of contract. The Empire company sued Morris & Co., alleging that a verbal contract existed for the supplying of cotton duck by the latter to the former; that deliveries were not made as agreed; and that the Empire company had gone into the open market and bought duck, which had greatly advanced in price. The amount sued for was the difference between the market price and that under the contract. A verdict was awarded to the Empire company for $227, a much smaller sum than was sued for, and an appeal was taken on the ground that a ruling of the trial justice had limited improperly the damages allowable to the plaintiff.

RUBBER NOTES FROM EUROPE.

A RECENT patent relating to a waterproofing material, granted to Edward Frankenberg, of Hanover, Germany, mentions numerous advantages claimed from the combination in it of India-rubber and Gutta-percha—resistance to changes of temperature, capacity of being sterilized, durability, odorlessness, and so on. The surfaces of fabrics prepared by this process can be washed and ironed and regain their fresh appearance; the tissue, on the application of the iron, closing up any scratches or tears. This fabric is stated to have been used with success for undersheeting in a German government hospital.

=Vacuum drying stoves for many purposes have been made for some years by George Scott & Son (London), Limited, and they are now turning their attention to supplying a vacuum drying device suitable for drying new rubber on plantations. These stoves are made in different sizes, from 54 × 54 × 45 inches up. They are made of cast iron, heavily ribbed, and are very strong.

=At the Antwerp auction of October 23 the offerings included 4860 kilograms of Guayule, with a brokers' estimation of 5 francs, equal to 43¾ cents per pound. One ton realized 4.85 francs [=42½ cents] and the remainder 4.72½ francs.

=The Berlin-Frankfort India-Rubber Co., for many years established in the heart of the city of Berlin, are building a great factory some five miles out of the city, and are making it up to date in every respect.

=Messrs. Typke & King, the India-rubber chemists and dealers in substitutes, at 16, Mincing lane, London, have become a public company, under the style Typke & King, Limited.

=At a meeting in London of the leading makers of rubber balls in Europe it was agreed to continue existing prices for a year. It appears that the German makers were in favor of an advance, but this was opposed by the British firms on the ground that prices are already so high as to restrict trade. They felt that it would be better to sustain a present loss and await a fall in the cost of raw material.

=The Franco-American India-Rubber Co. ("Prowodnik"), of Riga, Russia, have taken on the manufacture of motor tires, of which they were exhibitors at the late Olympia show, in London.

=J. E. Hopkinson & Co., Limited, of West Drayton, Middlesex, England, were awarded the *grand prix* and a gold medal at the Milan exposition for their solid rubber motor tires.

=The Kempshall Tyre Co. of Europe, Limited, has been registered in London, with £45,000 capital, to adopt an agreement with Eleazar Kempshall (of golf ball fame) to acquire certain patent rights relating to automobile tires and to carry on the manufacture of tires. Mr. Kempshall is to be a director so long as he holds £20,000 in shares.

PARA newspapers now contain advertisements regarding the employment of *Caucheiros*—the workers in gathering Caucho, indicating that production of this grade of rubber is approaching nearer Pará. The gatherers of the regular Pará rubber are termed *Seringueiros*, from a native name of the rubber tree, *seringa*. Hence, also, the term *seringal*, for a rubber camp.

THE EDITOR'S BOOK TABLE.

LE CAOUTCHOUC EN INDO-CHINE ÉTUDE BOTANIQUE, INDUSTRIELLE, et Commerciale Par Camille Spire [et] André Spire. Paris: Augustin Challamel. 1906. [Large 8vo. Pp. VI. I + 262 + 35 plates.]

ALTHOUGH latest on the list of rubber producing countries, French Indo-China is not the least important. It is only a few years since the first rubber from this source reached any market, but exports from there already have reached 400 tons in a single year, and this without thorough exploitation of native resources or the development of plantations. It appears that a number of rubber species of value occur in the forests of the colony—*lianes*, or creepers, which attain a large size and yield liberally a rubber of good medium quality.

The botanical part of this work, contributed by Dr. C. Spire, of the French colonial army medical service, forms a monograph of no little interest and value, especially since several of the rubber vines he mentions are not described in any other single work, and few of them in any form readily accessible to the rubber trade. We may suggest, in passing, that the fact of the Indo-Chinese rubber plants being vines should not lessen interest in this new rubber district; vines as producers of Caoutchouc have been known for more than a century, and the commercial yield from them long has formed a large percentage of the world's consumption of this material.

Dr. Spire's collaborator is his brother, the secretary of an association with headquarters in Bordeaux and having for its object the exploitation of the rubber resources of West Africa. His share is the matter relating to the chemical properties of the Indo-Chinese rubber and its industrial applications. The joint authors have had in their work the coöperation and encouragement of some important members of the rubber trade in their home country, so that they have been able to make it in every respect a thorough and complete work, while the publisher has brought out the book in a fittingly handsome style.

It may be that one result of the publication of this book may be to stimulate an interest in the search for rubber in regions in the neighborhood of Indo-China, which may prove to have similar resources. By the way, the present issue of THE INDIA RUBBER WORLD contains a report on rubber on the island of Formosa, obtained from *lianes* similar to a species which is regarded in Indo-China as important.

VACUUM DRYING IN RUBBER MAKING.

THIS suggestion is made by Messrs. J. P. Devine Co. (Buffalo, New York), who are interested in the sale of the Passburg vacuum drying apparatus, which has been supplied to a number of rubber plantations in the Far East: "It is considered a most advantageous reform to wash and dry the rubber where it is grown, and not to ship it with all its vegetable and mineral impurities. Particularly the vegetable impurities are apt to lead to fermentation, and fermented rubber means perished rubber. We believe that the complaint of the rubber manufacturers, who buy the crude rubber and have it washed, as regards loss of weight in removing the dirt contained in the rubber, does not sufficiently take into consideration the damage done by such dirt during the time it was encased in the rubber." The "block" rubber, which has been bringing "record" prices in London, has been dried by the method above described.

NEWS OF THE AMERICAN RUBBER TRADE.

GENERAL RUBBER CO.—ELECTION.

AT a recent meeting of directors of the General Rubber Co. (New York) the office of president, vacant since the resignation of Mr. William M. Ivins, was filled, and other officers elected, as follows:

President—SAMUEL P. COLT.
Vice President—LESTER LELAND.
Treasurer—JOHN J. WATSON, Jr.
Assistant Treasurer—A. H. BROWN.
Secretary—SAMUEL NORRIS.
Assistant Secretary—JOHN D. CARBERRY.
General Manager—WILLIAM F. BASS.

The directors are Messrs. Colt, Leland, and Watson, besides the following: James E. Ford, E. C. Benedict, Walter S. Ballou, James Deshler, Anthony N. Brady, and Charles H. Dale.

An executive committee has been chosen, consisting of Samuel P. Colt, Lester Leland, Charles H. Dale, and John J. Watson, Jr. The General Rubber Co. was organized primarily for the purpose of purchasing the crude rubber used by the United States Rubber Co. It is not unlikely that from this time on the scope of the company will be even larger than it has been thus far, in that the management proposes also to sell crude rubber to the outside trade as well as to buy it for the use of the United States Rubber Co., the Rubber Goods Manufacturing Co., and their owned and controlled companies.

THIS YEAR'S AUTOMOBILE SHOWS.

THE automobile show to be held by the Automobile Club of America at the Grand Central Palace, New York, will open on Saturday evening, December 1, and close on the evening of December 8. The show at Madison Square Garden, under the auspices of the Association of Licensed Automobile Manufacturers, will be held January 12 to 19. The Chicago show will be held, as last year, in the Coliseum and First Regiment armory, on February 2-9. The great English automobile shows have been held already, the Olympia on November 15-24, and the Stanley closing on December 1. The Paris show was held November 7-23.

THE MAPLE LEAF RUBBER CO.

THE purchase was mentioned in the last issue of this Journal of The Maple Leaf Rubber Co., Limited, by the Canadian Consolidated Rubber Co., of Montreal. The Maple Leaf company, originally under another name, were the first to make rubber footwear in the province of Ontario. They removed to Port Dalhousie in 1891, occupying a new factory, which was burned on January 2, 1899. The factory was replaced by a new and larger plant, complete and well arranged for the company's specialty, the manufacture of rubber boots and shoes. The business of the company has been done under the title The Maple Leaf Rubber Co., Limited, since March, 1900, though their "Maple Leaf" trade mark had already become widely known in the Dominion trade. Previously the concern had been the Toronto Rubber Shoe Manufacturing Co. The capital of the company was increased in September, 1901, from $250,000 to $350,000. The latter was the price paid by the Canadian Consolidated Rubber Co., and the purchase is reported to have been a cash transaction.

HARTFORD RUBBER TIRE FEATURES.

THE Hartford Rubber Works Co. have brought out a new non skid feature for pneumatic tires. It consists in embedding in the tread of a flat tread tire of ordinary pattern four parallel endless coils of helical spring. Being incorporated into the material of the tire during the manufacture, the portion of each coil which lies beneath the surface of the tread is a fixture, the vulcanizing process firmly attaching the rubber to it. In the event of the outer loops wearing down, there will still remain a series of inverted staples fixed in the tread. It is this wearing away that is looked for, the use of the spring being in a way, merely a convenient method of setting the staples into the tread. Their use saves the wear on the rubber in somewhat the same manner that nails in a boot save the sole and heel leather, as well as adding to the firmness of the footing.==The Hartford people have been preaching the gospel of larger tires for a year or more, in the belief that much unnecessary tire trouble is due to the use of tires too small for the duty demanded of them. They are now making tires of large size which are adaptable to standard rims of smaller size—for example, 5 inch tires are supplied for 4½ inch rims. The result is that the owner of a motor car, desiring to adopt larger tires may do so without changing or altering the rims.==The anti skid feature above mentioned is applicable also to solid vehicle tires. Besides, the Hartford company are making solid tires with sets of the helical springs in the base, instead of wire or fabric mesh, with the idea that the wires cling to a larger amount of the rubber than any fabric could do, and that the tire is thus made stronger. Their solid tires are made in single form for loads up to 10,000 pounds; for heavier loads the twin form is recommended.

TRADE NEWS NOTES.

IN a letter to THE INDIA RUBBER WORLD an American rubber manufacturer writes: "We are not large users of foreign scrap. However, there are some grades that are getting quite scarce in this country, and we may be obliged to bury our prejudice."

=The B. & R. Rubber Co. (North Brookfield, Mass.) have a night force at work, to facilitate getting their factory in readiness for operation.

=That cushion tires for carriages have not gone out of fashion was proved by the excellent exhibit made by the Stein Double Cushion Tire Co. (Akron, Ohio) at the National Carriage Builders' Association show at Atlanta.

=Rubber tire exhibits were made at the National Carriage Builders' Association at Atlanta, on October 23-25, by a larger number of manufacturers than in any previous year. The convention was the largest yet held, and the industry was reported to be in a flourishing condition. Next year's convention will be held in New York.

=Major E. W. Harral, of the Fairfield Rubber Co., became ill just before the recent exhibition connected with the meeting of the Carriage Builders' National Association at Atlanta, and thus a familiar figure at this annual gathering was missing, as was his company's exhibit of carriage cloth. Major Harral, fortunately, is recovering.

=C. S. Van Auken has been appointed receiver of the Mexican Plantation Co. of Wisconsin, at La Crosse, Wis. The appointment was made by Judge J. J. Fruit of the circuit court on October 27. He informs THE INDIA RUBBER WORLD: "It is not my intention to operate the plant in Mexico but simply to conserve the property for the benefit of the bondholders and creditors."

=Wallace L. Gough & Co. have entered the business of merchants in India-rubber, Gutta-percha, and Balata, at No. 108 Water street, New York.

=Mr. A. Valladares, of Peru, a nephew of President Pardo of that country, who has been for some weeks in New York, has returned home, taking with him Mr. George E. Heyl-Dia. The gentlemen are going to examine carefully a large wild rubber concession, owned by the father of the one first named, with the idea of at once taking steps to gather the rubber. The concession is a very large one, is stated to have millions of *Hevea* trees on it, and also some "Gutta-percha," by which is meant doubtless Balata. Mr. Heyl-Dia will probably be absent for four months.

=Colonel Samuel P. Colt is reported to have purchased a controlling interest in the Bristol and Warren Water Works Co., which supplies the two Rhode Island towns mentioned, and also the town of Barrington, with water.

=The Pennsylvania Rubber Co. (Jeannette, Pa.) now have branch stores in New York, Philadelphia, Chicago, Boston, Buffalo, and Atlanta. About November 1 the New York branch will move into a large new building at No. 1741 Broadway, especially built for its convenience. The Boston branch will move from Oliver street to No. 20 Park square, where it will be in the center of the retail district.

=The following notice was posted at the factory of the Apsley Rubber Co. (Hudson, Massachusetts) on November 6: "The working hours of the Apsley Rubber Co., from this date will be from 7 A. M to 12 M., and from 1 P. M. to 5 P. M., 54 hours a week, with no reduction in pay." This notice includes the employés in the last factory, box factory, and clothing department, as well as in the boot and shoe department.

=In a notice of a memorial service that took place at Dallas, Texas, during the recent convention of the International Association of Fire Engineers, all the papers that reported that event by some mistake inserted the name of Isaac B. Markey, of New York city, as one of those who had died during the past year. But Mr. Markey at the time was mingling with his friends in the convention, very much alive, as every one who has had business with the Eureka Fire Hose Co. knows to be his normal condition.

=Mr. F. Ephraim, formerly in the rubber goods business in San Francisco, is now in Mexico, interested in Guayule rubber. Though not connected with any rubber extraction company, he informs THE INDIA RUBBER WORLD that five such companies are paying a royalty for the use of his Guayule extraction patents.

=The Canadian Rubber Co. of Montreal have obtained from the city of Winnipeg orders for 5000 feet of 3½ inch pressure hose for fire protection, and 5000 feet wax and gum treated "Keystone" fire hose.

=The 9 hour day went into effect on November 5 at the factory of the National India Rubber Co., and a week later at the factories of the Boston Rubber Shoe Co. The hours are from 7 A. M. to 5 P. M., instead of to 6 P. M., as formerly.

=A quantity of merchandise discovered in storage at Natick, Massachusetts, under suspicious circumstances, embraced rubber boots and shoes valued at $8000 which were replevined by the Hood Rubber Co. The marks had been removed from the cases, and the goods were suspected to be part of the stock of a firm which failed at Natick recently.

=The Munger Vehicle Tire Co. on October 30 allowed a judgment to be entered against them, in a New York court, for $11,881, in favor of Louis De F. Munger, formerly a director of the company, for breach of contract for services for five years from December 12, 1899, at a salary of $3000 per year and a commission on the profits of the company. He sued the company for $875 salary earned, and $20,000 damages for dismissal, and a compromise was agreed upon at $11,881. The company, organized to market a rubber tire invented by Mr. Munger, have not been in active business for some time.

=Parker, Stearns & Co. (New York), in addition to their widely known lines of druggists' and stationers' sundries, are producing high grade seamless inner tubes for motor tires, under the "Alpha" brand.

=The formalities connected with the taking of title by The B. & R. Rubber Co. (North Brookfield, Massachusetts) to their factory site and buildings were completed on November 1.

=The Davidson Rubber Co. (Charlestown, Massachusetts) have awarded a contract for a two story addition to their factory, 53 × 69 feet.

=A British patent (No, 10,779 of 1906) has been granted to Addison T. Saunders, of Akron, Ohio, for improvements in pneumatic playing balls.

=Mr. John O. DeWolf, at one time assistant superintendent of the Boston Woven Hose and Rubber Co., has gone into partnership with Mr. John S. Bridges, Jr., under the firm name of John O. DeWolf & Co., who are located at No. 159 Devonshire street, Boston, their specialty being mechanical, electrical, and mill engineering. One of the first commissions that Mr. DeWolf has taken on is the installing of new machinery for the Boston Woven Hose and Rubber Co. (Cambridgeport, Mass.)

=One of the more recent acquisitions of the machine works of John Royle & Sons (Paterson, New Jersey) is a show room in which a line of their tubing machines has been effectively displayed, together with a representative assortment of fixtures.

=The Consumers' Rubber Co. (Bristol, Rhode Island) have reduced the work day at their factory from 10 to 9 hours, without changing the wage scale. The company are reported very busy in insulated wire work.

=The baseball team of the "Alice" mill of the Woonsocket Rubber Co. won the championship in the league existing this year among the employés of the different factories at Woonsocket, and on a recent Saturday evening Superintendent Schlosser, of the rubber factory, by direction of President Samuel P. Colt, gave a banquet to which all the members of the league were invited. The affair was enjoyed by 230 guests.

=Mr. J. Schnurmann, an extensive rubber scrap merchant in London, was a recent visitor to the trade in the United States.

=The Boston Woven Hose and Rubber Co., Joseph V. Selby, Pacific coast manager, are now located at No. 48 Stewart street, San Francisco.

=A fire at the works of The Canadian Rubber Co. of Montreal, Limited, on the evening of November 10, caused a loss estimated at $10,000. It is supposed to have been caused by spontaneous combustion, and involved the drying and stock rooms.

=The Empire Rubber Manufacturing Co. have been elected to membership in the New York Board of Trade and Transportation.

=The Dunlop Tire and Rubber Goods Co., Limited (Toronto, Ontario), were the first concern in Canada to adopt the simplified spelling in commercial literature. Because of this "Canada's national rubber supply house" is "lookt" upon and "talkt" about more than ever. That their tires may be easily "attacht" and "detacht," that the quality of rubber in them cannot be "surpast" and that lighter tires are "shipt" to the dealer in continuous lengths, makes more interesting reading than such advertising generally does. Whatever the criticism of the new spelling may be, the readiness to test it shows the progressiveness of this company.

=The well known firm of Pirelli & Co. (Milan, Italy), general India-rubber, Gutta-percha, and insulated wire and cable manufacturers, are making negotiations for the establishment of a selling agency in one of the larger cities of the United States.

="Want to take a ride on *good* tires?" is the pertinent question propounded by a dapper little laddie who ornaments an advertising panel that is being distributed by Morgan & Wright (Detroit, Michigan). It is neat advertising withal, and will serve as a frequent reminder that "Morgan & Wright tires are good tires."

=Dow Tire Co., the incorporation of which was reported in the last INDIA RUBBER WORLD, have a temporary office at No. 104 West Forty-second street, New York. Alexander Dow is president, Harry D. Gue vice president, and Sidney R. Perry secretary and treasurer.

=The Universal Tire Manufacturing Co., of New York, filed incorporation papers at Albany on October 31, 1906; capital $100,000. Incorporators: F. Yeager, F. S. Durand, D. Buchanan, R. Emison and W. M. Palmer.

=The name of Colonel Samuel P. Colt is mentioned frequently in connection with the forthcoming choice of a United States senator from Rhode Island.

=The Kansas Rubber Co. (Olathe, Kansas) are issuing advance catalogues calling attention to the leading articles that will be listed in their complete catalogue that will follow. The list includes automobile tire treads and repairs, vehicle tires, valves, packing, tubing, oil well and gas well supplies, typewriter supplies, rubber springs, bumpers, anti rattlers, fruit jar rings, mold work of all descriptions, electric tape, and mechanical specialties.

=The National India Rubber Co. had a good display of carriage cloth at the carriage convention show at Atlanta, in charge of Superintendent Elwyn C. Fish.

=A set of 30×3½ inch International Clincher tires, made by The International Rubber Co., was used on a Maxwell touring car on a recent 3000 non stop run, with no "tire trouble" beyond one small nail puncture, and this did not cause the tire to leak.

=The city of Monterey, Mexico, it is rumored, is to become the home of a rubber factory, the product of which is to be tires, and general mechanical rubber goods.

=The shareholders of the General Electric Co. have voted to increase the capital stock by $20,000,000, making the total $80,000,000, the increase to be used for extensions and additional working capital.

=Snow has appeared in various parts of the country during the month, in many places, in such depths as to stimulate the rubber footwear trade to great activity. The snowfall at Spartanburg, South Carolina, and in the neighboring region was unprecedented for the time of year.

=The twin tires of the Firestone Tire and Rubber Co. (Akron, Ohio) are now known as the Dual tires. This change is in nomenclature only, as the output of tires will have all the qualities that have heretofore made them so well known. The Boston branch of this company, by the way, was not one of the heavy losers by the recent fire in that city, as was reported by the Associated Press. They were formerly located on Beverly street, where the fire took place and as some of the old signs remained the erroneous report is in this way accounted for. It will be recalled that they moved to Park Square some months ago.

=Ekert's high resistance materials are receiving especial attention in the advertising of the Dayton Rubber Manufacturing Co. (Dayton, Ohio). These materials are made by the mechanical combination of long fiber asbestos with rubber. Strength, elasticity, durability, and resistance to the action of the highest temperatures are the qualities that this combination of compounds insures. It is claimed for the Ekert high resistance unvulcanized steam packing that it will pack any kind of a joint under any and all pressures of water, steam, acid, oils, ammonias, etc., and that it can be placed in a joint that is either hot or cold.

=Among the intending exhibitors at the New York and Chicago automobile shows who have secured space are The Republic Rubber Co., Pennsylvania Rubber Co., The Diamond Rubber Co., Morgan & Wright, The Firestone Tire and Rubber Co., Pantasote Co., International Rubber Co., Hartford Rubber Works Co., Fisk Rubber Co., Goodyear Tire and Rubber Co., The B. F. Goodrich Co., Joseph Dixon Crucibile Co., Michelin Tire and Supply Co., Electric Rubber Manufacturing Co., Eugene Arnstein, Continental Caoutchouc Co., Swinehart Clincher Tire and Rubber Co., and the G. & J. Tire Co.

=The business for 1906 of the Western Electric Co. (Chicago), it is stated, will amount approximately to $70,000,000. The company was formed in 1881. The sales in 1884 amounted to $1,534,784. The business has increased eight fold in 10 years. The capital of the company is now $15,000,000, and is to be increased soon to take care of the enormous increase in business.

=John MacMillan and Charles G. Fawkes are no longer connected with The Milwaukee Rubber Works Co. (Cudahy, Wis.) in any capacity. They were mentioned in the last INDIA RUBBER WORLD as planning to start a new rubber tire factory.

=There was recently reported the shipment from Nicaragua of 3000 pounds of plantation rubber, by Mr. John C. Horter, whose earlier shipments, on a smaller scale, have been noted in this Journal.

=Michelin Products Selling Co., Inc. (New York), state that the best discount on their tires which they extend to others than jobbers is 5 per cent. from current price lists, for payment within ten days.

=Harris Tire and Rubber Co. filed articles of incorporation in Maine on November 15, 1906, with $1,000,000 capital authorized. Incorporators: J. E. Mantu (president), C. E. Eaton (treasurer), and C. D. Fullerton, all of Portland, Me.

=The Firestone Tire and Rubber Co. (Akron, Ohio) will exhibit at the Grand Central Palace automobile show in New York, December 1-8, in addition to the solid side wire motor tire, single type, with which they have made the motoring world familiar, the same tire in the new "Dual" form, and a general line of pneumatic tires.

=The Boston Rubber Shoe Co. are doing some very artistic advertising by means of the popular post cards. These represent the landmarks in and around the Hub, the Old South Church, the Old North Church (made famous by Paul Revere's midnight ride), King's Chapel (where Washington attended), Bunker Hill Monument, the Christian Science Church, Faneuil Hall, etc. The cards are delicately tinted and some appropriate bit of unobtrusive advertising for the company appears on each. For instance, on the card bearing Faneuil Hall, we are informed that "'Boston' rubbers are cradles of health," and on the one on which the Christian Science Church appears is the simple statement that "'Boston' rubbers are the science of health."

=The corporate title Acme Rubber Manufacturing Co. has been adopted by the company known formerly as The Eureka Rubber Manufacturing Co. of Trenton, N. J.

=Mr. W. J. Gorham, president of the Gorham Rubber Co. (San Francisco), has returned from a trip to Germany, where he went to see how matters stood with his insurance in the Rhine-Moselle company. He says: "I went to see about $25,000 of my own and $10,000 for The B. F. Goodrich Co., and I did not have to come down a particle on the policies."

=Coupons on the 6 per cent. purchase money bonds of the Tehuantepec Rubber Culture Co. were payable on and after December 1 at the office of the Knickerbocker Trust Co. (New York).

=Fire on the morning of November 23 destroyed the storehouse of the Plymouth Rubber Co., on Lincoln street, Stoughton, Massachusetts.

=In the award of the tire contract for the Cadillac cars for 1907, the Hartford Rubber Works Co., and Morgan & Wright are sharing equally, one-half the contract being awarded to each concern.

=The firm of H. H. Bridgewater & Co. (Akron, Ohio) have become a corporation under the laws of Ohio, with the style The Bridgewater Machine Co. They manufacture molds, dies, and machinery for the rubber industry. F. H. Mason, of The B. F. Goodrich Co., is president; Freeman Mason, of the same company, vice president; and H. H. Bridgewater, secretary and treasurer.

=One of the largest tire exhibits at the Grand Central Palace automobile show (December 1–8) will be that of the Hartford Rubber Works Co., in space No. 1. There will be seen all the products of the company, including several distinctly new features, which doubtless will prove of much interest to the trade.

=Plans are under way for the reorganization, with increased capital, of the Reinforced Hard Rubber Co., and the removal of the factory from Jersey City to Baltimore. The company make telephone receivers from material prepared under patents granted to Dr. W. R. Sine.

=Mr. Charles R. Flint, formerly prominent in the rubber trade, has purchased in Long Island, near New York, 300 acres of land, for the reported price of $225,000. It is said to be his intention to build a residence on the property.

=The directors of the Boston Woven Hose and Rubber Co., have declared a semi annual dividend of $3 per share on the preferred stock, payable December 15, 1906.

=Suits for injunction have been filed recently against the importers into this country of foreign made rubber cored golf balls. The first of these suits slated for trial, Haskell Golf Ball Co. *v.* Frank L. Slazenger, was set down for hearing in the New York supreme court, for November 20. Before the case was called, however, a settlement was reached out of court, by the terms of which the defendant agrees to recognize the validity of the Haskell patent. In other words, imported golf balls infringing this patent can be sold only by the payment of royalties to the patentee.

=President Van H. Cartmell, of The Consolidated Rubber Tire Co. (New York), is pretty well known in the rubber trade as one of the leaders in the solid rubber tire business. It is not perhaps as well known that he has a son, Carl P. Cartmell, who as treasurer of the Para Recovery Co. is also making a place for himself and a reputation for his concern in the rubber business.

=The Niagara Rubber Co., the incorporation of which was reported last month, are installing a plant at Lockport, New York, where will be carried on the manufacturing done hitherto by the Amazon Rubber Co., of Jamestown, New York.

=The Stamford Rubber Supply Co. (Stamford, Conn.) were incorrectly reported in several newspapers as having been burned out in the large fire of November 15. Their premises adjoined the principal building burned, but most fortunately was saved by strenuous work on the part of the firemen.

=At the recent sale of the plant and premises of the Atlantic Rubber Shoe Co., announcement was made that it would be subject to an attachment for $25,000. This was placed upon the property on May 22 last, in the suit of Ethan H. Cutler, of Boston, to recover money claimed to be due him for services rendered the company while in their employ as selling agent, between April, 1904, and October, 1905.

=Fire on November 15 destroyed the factory at Stamford, Connecticut, of the Atlantic Insulated Wire and Cable Co. Building, machinery, and stock were a total loss, but covered by insurance. The company are actively engaged in planning for a new plant, on their own property, situated on the canal and railroad at Stamford, and expect to be under full operation within 90 days.

=The United States Rubber Co. have not acquired the Glenark Knitting Mills, as might be inferred from some published reports.

=The Iroquois Rubber Co. (Buffalo, New York), a jobbing company of which Frank C. Howlett is president and treasurer, will occupy a new five story building, for which plans have been drawn, about May 1 next. The company have outgrown their present quarters, No. 43 Pearl street. The new building, to front on Washington street, will be 46 × 146 feet.

=The Siemon Hard Rubber Corporation (Bridgeport, Conn.), makers of insulating specialties, are reported to have a good export trade.

RUBBER RECLAIMERS' CLUB.

THE Rubber Reclaimers' Club met on November 9, at the Astor House, New York, and elected Arthur W. Clapp, president; Francis H. Appleton, treasurer; and R. W. Seabury, secretary. For an executive committee they elected Rudolph Loewenthal, John K. Mitchell, J. A. Lambert, and Edward R. Solliday. They also adopted a set of by laws. At this meeting the original scheme of the club was somewhat changed. Instead of admitting scrap dealers to membership, it has been decided to invite only those who manufacture reclaimed rubber to become members of the association. The next meeting of the club will be held early in December in Boston.

NEW YORK STOCK EXCHANGE TRANSACTIONS.

UNITED States Rubber Co.:

DATES	Common.			Preferred.		
	Sales.	High.	Low.	Sales.	High.	Low.
Week ending Oct. 20	8,130	50¾	47⅛	1,110	109	105
Week ending Oct. 27	5,055	50½	47½	3,690	108¼	105
Week ending Nov. 3	3,950	50⅜	49	2,867	107⅝	105⅛
Week ending Nov. 10	2,550	50¼	49	910	107⅞	106⅛
Week ending Nov. 17	12,060	53	48⅜	1,000	107	106
Week ending Nov. 24	10,020	53½	51¼	1,200	108⅜	106½

SECOND PREFERRED.

WEEK ending—Oct. 20.	Oct. 27.	Nov. 3.	Nov. 10.	Nov. 17.	Nov. 24.
Sales..... 10	500	20	—	400	100
High..... 78½	77	77	—	75½	78
Low..... 78½	76	77	—	75	78

ATLANTIC RUBBER SHOE CO 'S PLANT SOLD.

THE plant of the Atlantic Rubber Shoe Co., and the land occupied by it, at Cranston, Rhode Island, was sold at auction on November 2, to William H. Perry, for $137,000. The property, sold as one lot, was described as consisting of a three story brick mill, 268 × 64 feet; boiler house 56 × 36 feet, connected; three story brick machine shop, 148 × 64 feet; three 175 HP. boilers; Allis tandem compound engine, 450 HP.; electric plant, sprinkler system, pumps and other equipment, and the mill machinery; about 11 acres of land, on the Pawtuxet river. The buildings were begun in May, 1903, and the factory put in operation within a little less than a year.

AMERICAN TIRES AT THE CUP RACE.

AT the recent Vanderbilt Cup race, The Diamond Rubber Co.'s were the only American tires used. The confidence shown by this company in the quality of its product was justified at the Elimination contest, held beforehand, for the selection of the American team. On that occasion, when twelve racing machines traveled at high speed over a total of nearly 3000 miles, it is stated that no defect or imperfection developed in a single tire, and no serious mark of wear, except that two tires punctured and ran flat. But before the race proper the weather changed, making trouble for all the contestants. After the event The Locomobile Co. of America, who had a car entered, wrote to The Diamond Rubber Co.:

Owing to the slippery condition of the course the morning of the Vanderbilt race, it was necessary to equip our car with three non skid tires; two on the rear and one on the front. We knew these tires to be inferior to your regular tires when we put them on the car, as we had been so advised by your firm, and while fully aware of this fact, we were compelled to use them in order to keep our car in the road at speed.

The "tire trouble" mentioned in the newspaper reports was due to the non skid tires. As wheels were locked at terrific speed to take sharp curves in the course the rivets of the non skid tread bands were pulled loose, and replacements were necessary. But there was no record of blowouts or other troubles indicating tire weakness or defects. And the fastest round made by any contestant during the race was by Tracy, after he had thrown away the non skids and used the standard Diamoud tires.

THE RUBBER TRADE AT AKRON.

BY A RESIDENT CORRESPONDENT.

THE Rubber Products Co., incorporated in Ohio in October, with $100,000 capital, for the purpose of acquiring the plant and business of the Alden Rubber Co., have about completed their plans for the operation of the factory, and will take possession in the near future.

Officials of the Faultless Rubber Co. announce that with favorable conditions the work on their buildings at Ashland, Ohio, will have been completed by Christmas, and that the company can move from Akron to their new location immediately after the first of the year. The new buildings will be five in number. The largest will be 200 × 50 feet, and four stories in height, and the others 100 × 75 feet, and two stories high. All are being built of brick, and are fireproof. The company will invest $50,000 in machinery of the latest pattern. All of the heavier machinery is at Ashland at the present time. The capacity of the Ashland plant, which has been operated for three years in connection with the Akron factory, will be tripled when the two are consolidated.

The capital stock of the Aladdin Rubber Co., which has a reclaiming plant at Barberton, has been increased this week from $100,000 to $250,000. Secretary C. M. Gilbert is authority for the statement that a large addition is to be built, and the company's facilities largely increased. Work will commence as soon as the weather conditions will allow. The company organized a little over a year ago with a new and secret process for reclaiming rubber, and has met with great success.

After a six weeks' trip through Europe, President H. S. Firestone, of the Firestone Tire and Rubber Co., with his wife, has returned to his home in Akron, firmly convinced that American methods of manufacture are superior to those used by European makers. "This is especially true," says Mr. Firestone, "in the manufacture of the heavy truck tires to which we devote most of our attention. My trip to Europe was made chiefly to study tire construction, and I did not find one detail of the business which I considered good enough to adopt in our factories. I believe that European manufacturers could be taught several things by Americans in the building of heavy tires."

The latest census bulletin shows some interesting statistics regarding the manufacturing industries in Akron. It shows an increase in the capital of local industries of 23 per cent. Akron factories are said to have a capital of $29,188,351, and to employ 10,000 wage earners. The annual wages paid are $4,443,768, an increase of 163.7 per cent. in five years. The value of the annual product, two-thirds of which is rubber goods, is $34,004,243.

AMERICAN CONCESSIONS IN THE CONGO.

IT is announced that some very important concessions in the Congo Free State have been obtained by American capitalists, though full details must await certain official and legal formalities. But it is safe to assume that the new concessions involve neither the taking over of King Leopold's interests in the Congo, nor the displacing of any *concessionaires* holding rights hitherto in that region. From the meagre details made public it would appear that the Americans have been granted a concession to work and trade in rubber in certain sections of the *Domain privé* (national domain) not exploited heretofore, just as concessions have been obtained and developed by the Belgians for years past. In other words, there is one more rubber trading concession on the list—another district is to be opened—and what distinguishes it particularly is that it is held by Americans, and by a syndicate commanding enormous wealth.

One of the first acts of the Congo Free State was to reserve, as a national domain, all lands not under cultivation. The reservation would of course embrace the rubber areas, and these have been worked under concessions, each having definite territorial limits. It would appear that the concession to the Americans covers (1) a large area on the south bank of the Kassai river, extending to its junction with the Congo, and (2) a strip along the Congo, beginning some distance above the mouth of the Kassai. The Kassai, by the way, is the largest of the affluents of the Congo, and the valley drained by it has produced a large share of the rubber coming from the Free State. The profitable Kassai syndicate—the "rubber trust" of Central Africa—operates throughout the great region watered by the Kassai and its affluents, but its sphere of influence does not extend to the mouth of that river.

The rubber concession referred to will be taken over by the American Congo Co., incorporated October 17, 1906, under the laws of New York, with a nominal capitalization of $510,000, and with a temporary board of directors. The actual capitalization will be determined when the amount required has been agreed upon.

It is understood that the new *concessionaires* will not confine their interest to rubber. For year sthe desirability has been discussed of railways to connect more closely the basins of the Kassai and some other streams, and the American syndicate interested in rubber is expected to form a second company for railway building and operation. Still another probably will be organized for developing a mining concession. The Congo country is known to be rich in minerals, and the syndicate is understood to have had the advice of John Hays Hammond, probably the ablest living mining expert.

This is not the first instance of American interest in the Congo. Stanley, the practical discoverer of the great river, was an American. The United States were first to recognize the Congo Free State when it asserted statehood. One of the first two trading companies to gain concessions in the Congo was organized and headed by General Sanford, an American. Subsequently, however, all trace of American influence and capital disappeared from that region.

Colonel Samuel P. Colt, of the United States Rubber Co. said in an interview that neither he nor his company was interested in the American Congo Co. He welcomed its appearance, because manufacturers were benefited by everything that tended to increase or cheapen the supply of raw rubber. He was glad to hear that the new company meant to introduce improved methods of preparing rubber. Colonel Colt said further:

"The concessions of the American Congo Co. do not conflict with negotiations by the United States Rubber Co. in the Congo Free State or elsewhere, but supplement them. High cost of the crude article tends to restrict the manufactured output, since that price is exactly one-half of that of the finished product. I should like to emphasize decidedly the fact that the United States Rubber Co. desires to encourage anything that tends to increase the supply and lessen the cost of the crude article."

THE RUBBER "VALORIZATION" SCHEME.

THERE has been introduced into the Brazilian congress a bill providing for a "valorization" scheme for rubber, similar to that for coffee which becomes effective for coffee on December 1. The congress adjourned shortly after the introduction of the bill, without action on the bill, but the subject doubtless will be revived. The new president, Dr. Affonso Peuna, is reported to be favorably disposed toward the project,

The coffee valorization plan is meant to protect the interests of planters by establishing a minimum price that will at least cover the expenses of production, and thus guard them against loss. The government, in effect, is pledged to buy coffee at the official price. The original plan involved the raising of a loan in Europe to supply funds for such government purchases, but this was changed to the extent of interesting large commercial firms and bankers identified with the coffee trade in Europe and America, who agree to create the necessary loan. The proposition is essentially a banking one, the capital being loaned to the state of São Paulo, the chief coffee state. The amount named in the despatches is $20,000,000. The government's purchases of coffee will be shipped to designated agents at New York, Havre, and Hamburg.

Naturally the rubber producers make the same claim to consideration at the hands of the government. Producers or owners of rubber, under the valorization proposal, would be entitled to deposit it at designated docks and to receive payment from the government at the price of the day. The right of exportation would be reserved to the rubber producing states—as Pará and Amozonas—and would be carried out in their behalf. The general government would be authorized to take up a home or foreign loan of not more than $50,000,000 with which to finance purchases of rubber.

One of the largest rubber importers in the United States says: "Before such a plan as that proposed can be brought into play it will be necessary to negotiate a loan and $50,000,000 at least will be needed. London bankers, however, are not ready to furnish the funds for such a scheme as they consider it poor policy for a government to enter into mercantile business."

THE Alford Rockwood Co., an importing firm at Bogota, write to the bureau of manufactures at Washington that from inquiries they have made they have learned that there is plenty of Chicle gum in Colombia.

TEXTILE GOODS MARKET.

THE demand for cotton duck by rubber manufacturers almost irrespective of the class of goods made, never was stronger than at present. The great majority of the mills have consumed more than the proportionate quantity due yon their contracts and there is no abatement in sight. Reports on all sides indicate increased strength. A competent authority says:

"Lately there has been a tendency to adopt more conservative views in regard to the prospective size of the crop to figures ranging about twelve to twelve and one-half million bales maximum. With the world's spinners requiring over 12,300,000 bales of good spinning American cotton to meet their consumption for the year, such a crop would make 10½ to 11 cent cotton a reasonable price, especially in view of the large quantity of low grades and the heavy premiums which are certain to develop as the season progresses to its close for the higher grades."

The strength of spot prices dominates the speculative market although it is not speculation which is raising prices according to a reliable source, which we quote:

"It is not speculation, however, that is raising prices. It is, as already stated in these columns, the commercial situation of the actual staple, the facts of legitimate demand and available supply. These are the basic influences which predominate now as they have for some weeks past, and judging from present appearances they are likely to continue to be paramount for some time to come if not throughout the entire season."

HARBURG-VIENNA COMPANY'S REPORT.

THE business report of the Vereinigte Gummiwaaren-Fabriken Harburg-Wien for the year ended June 30, 1906, shows a smaller volume of business than usual and lower profits, in connection with which account must be taken of the extensive fire in their Harburg factory in October of last year. The work of recovery has proceeded satisfactorily. The company's expenditures during the year include: New buildings, *M* 790,347; machinery, *M* 1,269,719; utensils and furniture, *M* 245,328. The gross profits of the goods account for the business year ending June 30 last amounted to *M* 2,582,103.19 [=$614,540.56]; against *M* 3,040,445.96 of the preceding year, and *M* 2,729,948.29 in the year 1903–04. The net profit for the last business year amounted to *M* 505,400.11 [=$120,285.32] against *M* 850,522.84 last year.

Antwerp.

RUBBER ARRIVALS AT ANTWERP.

NOVEMBER 13.—By the *Bruxellesville*, from the Congo:

Bunge & Co	(Société Générale Africaine) *kilos*	155,000	
Do	(Chemins de fer Grand Lacs)	4,000	
Do	(Comptoir Commercial Congolais	16,000	
Do	(Société Anversoise)	78,000	
Do	(Société A B I R)	3,500	
Do	(Comité Special Katanga)	2,000	
Société Coloniale Anversoise	(Belge du Haut Congo)	3,000	
Do	(Cie de Lomami)	6,500	
Do	(Süd Kamerun)	5,000	
Do		2,500	
Messrs L. & W. Van de Velde	(Cie du Kasai)	75,000	
Do		7,000	
M. S. Cols	(Société Baniembe)	300	357,800

ANTWERP RUBBER STATISTICS FOR OCTOBER.

DETAILS.	1905.	1904.	1903.	1902.	1901.
Stocks, Sept. 30. *kilos*	566,683	566,735	804,482	421,858	456,711
Arrivals in October.	509,727	555,920	363,490	944,274	340,598
Congo sorts	414,829	391,112	293,905	863,240	306,228
Other sorts	64,898	164,808	69,585	81,034	44,370
Aggregating	1,076,410	1,122,655	1,167,972	1,366,132	797,309
Sales in October	455,329	568,172	457,112	489,495	447,171
Stocks, October 31.	621,081	554,483	710,860	876,637	350,138
Arrivals since Jan. 1	4,762,232	4,615,168	4,845,311	4,726,430	4,369,518
Congo sorts	3,702,744	3,543,296	3,995,454	4,277,003	4,031,632
Other sorts	1,059,488	1,071,872	849,857	449,427	337,886
Sales since Jan. 1	4,876,338	4,602,046	4,745,351	4,507,898	4,434,089

REVIEW OF THE CRUDE RUBBER MARKET.

PRICES for the most part show little change from the quotations printed a month ago. For fine Pará, indeed, there is little change from the prices ruling a year ago. The condition of the rubber industry during the year has been one of steady activity, and the trade in raw material has shown an unusual regularity in the matter of supply and demand. The chief exception has been in the matter of Caucho and coarse Pará grades, which have advanced materially during the year. The explanation given in the trade is that a smaller percentage of the production in the Amazon valley of late has been coarse Pará, and this has led, not only to higher prices for this class of rubber, but to an increased demand for other medium sorts.

At the Antwerp sale of November 20, the greater part of the 222 tons offered found buyers at an advance over the inscription pricesof 30 to 40 francs per kilogram.

The arrivals at Pará, including Caucho, since the beginning of the crop season have been above the average in recent years, though scarcely as large as for the same period last year. The figures follow:

	1903.	1904.	1905.	1906.
July *tons*	1280	1250	1450	1840
August	1230	1260	1300	1690
September	2010	1780	2200	1930
October	2440	2820	3580	2965
November	2980	2800	2890	*a* 1580
Total	9940	9910	11420	10005

[*a* To November 19, 1906.]

Following is a statement of prices of Pará grades, one year ago, one month ago, and on November 28—this date:

PARA.	December 1, '05.	November 1, '06.	November 28.
Islands, fine, new	119@120	119@120	119@119½
Islands, fine, old	none here	none here	none here
Upriver, fine, new	122½@123½	124@125	123@124
Upriver, fine, old	none here	128@129	127@128
Islands, coarse, new	71@ 72	72@ 73	71@ 72
Islands, coarse, old	none here	none here	none here
Upriver, coarse, new	90@ 91	96@ 97	97@ 98
Upriver, coarse, old	none here	none here	none here
Caucho (Peruvian) sheet	73@ 74	77@ 78	76@ 77
Caucho (Peruvian) ball	88@ 89	95@ 96	95@ 96
Ceylon (Plantation) fine sheet		139@140	136@137

AFRICAN.		CENTRALS.	
Sierra Leone, 1st qual.	105 @106	Esmeralda, sausage	92@ 93
Massai, red	105 @106	Guayaquil, strip	75@ 76
Benguella	78½@ 79	Nicaragua, scrap	90@ 91
Cameroon ball	77 @ 78	Panama, slab	69@ 70
Accra flake	21½@ 22	Mexican, scrap	92@ 93
Lopori ball, prime	117 @118	Mexican, slab	71@ 72
Lopori strip, prime	107 @108	Mangabeira, sheet	67@ 71
Madagascar, pinky	90 @ 91	Guayule	44@ 45
Ikelemba	117 @118	EAST INDIAN.	
Soudan niggers	93 @ 94	Assam	94@ 95
		Borneo	39@ 48

Late Pará cables quote:

	Per Kilo.		Per Kilo.
Islands, fine	5$800	Upriver, fine	6$975
Islands, coarse	2$900	Upriver, coarse	4$875

Exchange, 15 5/16*d.*

Last Manáos advices:

Upriver, fine	6$700	Upriver, coarse	4$200

Exchange, 15 5/16*d.*

NEW YORK PRICES FOR OCTOBER (NEW RUBBER).

	1906.	1905.	1904.
Upriver fine	$1.22@$1.24	$1.22@$1.30	$1.12@$1.17
Upriver coarse	.93@ .96	.89@ .93	.86@ .90
Islands fine	1.19@ 1.21	1.19@ 1.27	1.09@ 1.14
Islands coarse	.68@ .73	.69@ .71	.61@ .65
Cametá	.69@ .72	.70@ .72	.61@ .65

In regard to the financial situation, Albert B. Beers (broker in India-rubber, No. 68 William street, New York) reports:

"During November there has been very little demand for paper, and only at high rates—over 6 per cent., on account of the strong money market, and banks having their funds actively employed. These conditions are likely to continue for a few weeks"

Statistics of Para Rubber (Excluding Caucho).

NEW YORK.

	Fine and Medium.	Coarse.	Total. 1906.	Total. 1905.	Total. 1904.
Stocks, September 30...*tons*	135	21 =	156	317	44
Arrivals, October	1001	353 =	1354	1189	1080
Aggregating	1136	374 =	1510	1506	1124
Deliveries, October	1011	374 =	1385	1279	1115
Stocks, October 31	125	0 =	125	227	9

	PARÁ.			ENGLAND.		
	1906.	1905.	1904.	1906.	1905.	1904.
Stocks, September 30...*tons*	1450	477	373	485	307	218
Arrivals, October	2985	3350	2660	840	878	793
Aggregating	4435	3827	3033	1325	1185	1011
Deliveries, October	4295	3672	2868	825	875	900
Stocks, October 31	140	155	165	500	310	111

	1906.	1905.	1904.
a World's visible supply, October 31...*tons*	2460	2794	1921
Pará receipts, July 1 to October 31	7780	7885	6611
Pará Receipts of Caucho, same dates	885	575	499
Afloat from Pará to United States, Oct. 31	963	971	736
Afloat from Pará to Europe, October 31	732	1131	900

a—Not including holdings in Continental Europe.

Ceylon (Plantation) Rubber Exports, 1906.

DETAILS—BY WEEKS.

	POUNDS.		POUNDS.
January 1 to Sept 17	222,201	Total, 1906	271 610
Week ending Sept. 24	10,221	Same dates, 1905	107,056
Week ending Oct. 1	7,978	Same dates, 1904	52,612
Week ending Oct. 8	6,542	Same dates, 1903	32,237
Week ending Oct. 15	10,615		
Week ending Oct. 22	14,053		

DESTINATION.

Great Britain	190,391	France	3,411
United States	62,052	Australia	3,519
Germany	9,666	Belgium	2,571

EXPORTS FROM THE STRAITS—JAN. 1 TO SEPT. 5.

Great Britain	359,466	Australia	7,465
Europe	35,867	Ceylon	25,330
United States	12,534		
Japan	6,124	Total	446,786

[From Singapore, 387,330; from Penang, 59,456.]

Antwerp.

TO THE EDITOR OF THE INDIA RUBBER WORLD: The result of our sale of September 26 was as follows:

	Exposed.	Sold.
Congo sorts	376 tons	334 tons
Other sorts	104 "	53 "
Total	480 "	387 "

The tone was firm. Prices show an average advance of about 15 centimes, or about 1½ per cent. above valuation. The fine grades such as Kasais, Congo Lobay, Equateur, etc., obtained the best prices, relatively. The next large sale will take place on October 23 when 419 tons will be exposed. Among the principal lots we mention:

		Estimation.
41 tons	Kasai Loanda Sankuru	*francs* 10.10
2 "	Kasai Loanda	10.90
28 "	Mongalla strips	8.30
21 "	Aruwimi	10.
18 "	Aruwimi	10.90

C. SCHMID & CO., SUCCESSEURS.

Antwerp, October 18, 1906.

Bordeaux.

THE demand continues very good for all fine grades, especially red Soudan niggers. Moderate business has been done at advanced prices. Soudan niggers, reddish, 10.95 @ 11 frances per kilo; ordinary, 9 @ 9 65; Soudan twists, 10.50; Lahou niggers, 9.85; Madagascar Majunga, 10.10. General tendency of the market somewhat firmer. Stocks this date, 264, including 124 Soudan. Massais in demand but no supplies on spot.

October 13, 1906.

Havre.

AT the inscription sale of November 23 about 161 tons of rubber were offered, from the French Congo, Madagascar, and Indo-China. Some of the larger lots, with their estimations, were: Batouri, 19 tons, 10.60 francs; M'Poko, 18 tons, 12.75 francs; Ekela Sangha, 15 tons, 10 60 francs; Upper Oubanghi red, 50 tons, 11.50 francs. Estimation for pinky Madagascar, 10 francs [=87½ cents per pound].

Liverpool.

EDMUND SCHLÜTER & Co. report [October 31]:

Pará grades were under the influence of delayed receipts and a continued good demand—prices advanced to 5*s* 3*d*. for new, and 5*s*. 4*d*. for old Upriver fine Bolivian, with considerable of the latter to America. Towards the close the larger arrivals at Manáos caused a setback. With the disappearance of the increase in receipts since July 1, and considering the large increase in deliveries, the market is in an eminently healthy position. At the same time there can be no doubt that the arrivals of rubber have been

Rubber Scrap Prices.

NEW YORK quotations—prices paid by consumers for carload lots in cents per pound—show a slight advance.

Old Rubber Boots and Shoes—Domestic	10	@	10¼
Do —Foreign	9	@	9¼
Pneumatic Bicycle Tires	7½	@	7¾
Automobile Tires	10	@	10⅜
Solid Rubber Wagon and Carriage Tires	8¼	@	8⅜
White Trimmed Rubber	11½	@	11¾
Heavy Black Rubber	5½	@	5⅝
Air Brake Hose	4¾	@	5
Fire and Large Hose	3⅝	@	3¾
Garden Hose	2½	@	2¾
Matting	1½	@	1⅝

delayed by low water in the Brazilian rivers, and when this rubber comes down it may counteract an upward tendency which would otherwise be bound to make itself felt.

WORLD'S VISIBLE SUPPLY OF PARÁ, OCTOBER 31.

	1906.	1905.	1904.	1903.	1902.
Tons	2655	2936	2237	2457	3107
Prices, hard fine	5/2 1/4	5/2 1/2	5/–	4/2 1/2	3/3 3/4

LIVERPOOL STOCKS OF AFRICAN RUBBER, OCTOBER 31.

1906 340	1903 235	1900 789	
1905 246	1902 547	1899 547	
1904 401	1901 673	1898 494	

BALATA quotations by Messrs. Schlüter & Co.: sheet, 2*s.* 3*d.* [54¼ cents]; Block, 1*s.* 7½*d.* [39½ cent], per pound.

London.

PLANTATION RUBBER AT AUCTION.

OCTOBER 26.—The quantity of plantation rubber offered was less than at the last few auctions. Bidding generally was strong and prices showed a slight improvement. The highest figure was 5*s.* 9¾*d.* [=$1.41⅓] for an exceptionally fine parcel of crepe rubber from the Jebong estate, in Perak (Malay States). Among the Ceylon offerings some particularly good biscuits from Heatherley estate realized 5*s* 7¾*d.* [=$1.37⅓]. The average, for all grades of Plantation was 5*s.* 2¼*d.*, against 5*s.* 1¼*d.* at last auction. Fine hard Pará to-day, 5*s.* 3*d.* Highest price for fine Plantation this date last year, 6*s.* 0¾*d.* [=$1.47½].

NOVEMBER 9.—The sale to day of plantation rubber was one of the largest yet seen at these auctions—302 packages, weighing something over 20 tons. There was a slight weakness in the bidding for sheet; no "block" was offered. Fine crepe, from Jebong estate, brought 5*s.* 8½*d* [=$1.40⅞]; crepe from Culloden (in Ceylon) brought 5*s.* 8¼*d.* Highest price for plantation at same date last year, 6*s.* 1¼*d.* [=$1.48½]. Fine Para to-day at same figures as one year ago—5*s.* 2*d.* [=$1.25⅝] ==Three packages *Castilloa* rubber from Java offered and "bought in."

IMPORTS FROM PARA AT NEW YORK.

[*The Figures Indicate Weights in Pounds.*]

November 3.—By the steamer *Dominic* from Manáos and Pará:

IMPORTERS.	Fine.	Medium.	Coarse.	Caucho.	Total.
General Rubber Co.	247,000	67,900	154,500	.....=	469,400
A. T. Morse & Co.	107,000	11,900	51,800	1,400=	172,100
Neale & Co.	10,300	1,700	59,400	20,500=	91,900
N. Y. Commercial Co.	48,600	9,000	16,200	.....=	73,800
Edmund Reeks & Co.	25,200	5,000	10,200	.....=	40,400
C. P. dos Santos	19,400	4,300	13,400	.....=	37,100
Poel & Arnold	.....	.....	32,900	.....=	32,900
Hagemeyer & Brunn.	19,200	.....	3,600	.....=	22,800
Total	476,700	99,800	342,000	21,900=	940,400

November 13.—By the steamer *Cearense*, from Manáos and Pará:

General Rubber Co.	146,200	46,100	79,800	700=	272,800
N. Y. Commercial Co.	100,500	22,400	61,400	1,200=	185,500
Poel & Arnold	22,500	6,100	113,600	8,500=	150,700
Edmund Reeks & Co.	59,800	7,000	18,900	.... =	85,700
Neale & Co.	32,200	11,500	21,500	.....=	65,200
A. T. Morse & Co.	33,500	6,600	27,900	.....=	68,000
Hagemeyer & Brunn.	28,700	.....	23,100	.....=	51,800
C. P. dos Santos	8,900	6,100	9,300	.....=	24,300
Total	432,300	105,800	355,500	10,400=	904,000

NOTE.—The steamer *Grangense* from Para, is due at New York, November 26, with 600 tons Rubber and 25 tons Caucho.]

PARA RUBBER VIA EUROPE.

		POUNDS
OCT. 22.—By the *Gascoyne*=Havre:		
Poel & Arnold (Fine)		68,000
OCT. 23.—By the *Waldersee*=Hamburg:		
Poel & Arnold (Fine)	45,000	
A. T. Morse & Co (Coarse)	10,000	55,000
OCT. 29.—By the *Umbria*=Liverpool:		
General Rubber Co. (Fine)	60,000	
New York Commercial Co. (Fine)	50,000	110,000
OCT. 29.—By the *Bleucher*=Hamburg:		
New York Commercial Co (Fine)	9,000	
New York Commercial Co. (Caucho)	15 000	24,000
OCT. 30.—By the *Zeeland*=Antwerp:		
Poel & Arnold (Fine)		13,500
OCT. 31.—By the *Georgic*=Liverpool:		
A. T. Morse & Co (Fine)		13,500
OCT. 31.—By the *Caronia*=Liverpool:		
New York Commercial Co. (Fine)	37,000	
General Rubber Co. (Fine)	7,000	44,000
NOV. 1.—By the *Oceanic*=Liverpool:		
A. T. Morse & Co. (Fine)	18,000	
New York Commercial Co (Fine)	9,000	27,000
NOV. 3.—By the *Bordeaux*=Havre:		
Poel & Arnold (Fine)		80,000
NOV. 7.—By the *Finance*=Mollendo:		
W. R. Grace & Co. (Fine)	2,000	
W. R. Grace & Co. (Caucho)	12,500	14,500
NOV. 8.—By the *Cevic*=Liverpool:		
Poel & Arnold (Coarse)		5,000
NOV. 9.—By the *Pennsylvania*=Hamburg:		
Poel & Arnold (Fine)		115,000
NOV. 12.—By the *Kroonland*=Antwerp:		
New York Commercial Co (Fine)		22,500
NOV. 13.—By the *Armenian*=Liverpool:		
A. T. Morse & Co. (Fine)		15,000
NOV. 16.—By the *Batavia*=Hamburg:		
Poel & Arnold (Coarse)	10,000	
General Rubber Co. (Fine)	25,000	35,000

OTHER ARRIVALS AT NEW YORK

CENTRALS.

		POUNDS.
OCT. 20.—By *El Cid*=New Orleans:		
Manhattan Rubber Mfg Co.	11,000	
A. T. Morse & Co.	6,000	

CENTRALS—Continued.

G. Amsinck & Co.	6,000	
A. N. Rotholz	2,500	
Eggers & Heinlein	3,000	28,500
OCT. 22.—By the *Minnetonka*=London:		
General Rubber Co		5,500
OCT. 22.—By the *Advance*=Colon:		
Hirzel, Feltman & Co.	10,200	
New York Commercial Co.	8,700	
G. Amsinck & Co.	3,400	
E. V. Harrman Co	1,200	
E. B. Stroud	1,500	
W. H. Coolidge	1,500	
Mann & Emdon	1,100	
Wessels, Kulemkamp Co	900	
Meyer Hecht	800	
R. G. Barthold	500	
W. Loaiza & Co.	900	30,300
OCT. 22.—By the *Seguranca*=Tuspan, etc.:		
E. N. Tibbals Co	2,000	
Graham, Hinkley & Co	1,000	
Ferdinand Ramos	500	3,500
OCT. 22.—By the *Italian Prince*=Bahia:		
American Commerce Co.		11,500
OCT. 21.—By the *Prins Waldemar*=Colombia:		
Escobar & Gorgorza	4,000	
A. Held	1,500	
Kunhardt & Co	1,500	
J. A. Paull & Co	1,200	
Colombian Trading Co.	1,000	
United Fruit Co	1,500	
Andreas & Co	1,000	
Isaac Brandon & Bros	800	
Graham, Hinkley & Co	1,000	
Suzarte & Whitney	1,000	14,500
OCT. 24.—By the *El Dia*=Galveston:		
Continental & Mexican Co.		50,000
OCT. 25.—By the *Panama*=Colon:		
Lawrence Johnson & Co	11,000	
Otto Gerdan	10,000	
Hirzel, Feltman & Co.	7,200	
A. Santos & Co.	4,000	
Dumarest Bros. & Co	3,200	
Charles E. Griffin	1,900	
G. Amsinck & Co.	900	
Mecke & Co	800	
America Trading Co.	800	
Andean Trading Co	500	40,300
OCT. 25.—By the *Byron*=Bahia:		
J. H. Rossbach & Bros	13,500	
New York Commercial Co	11,500	
A. D. Hitch & Co	4,500	
American Commerce Co.	8,000	37,500

CENTRALS—Continued.

OCT. 26.—By the *El Siglo*=Galveston:		
Continental & Mexican Co		30,000
OCT. 26.—By the *Virginia*=Colon:		
Hirzel, Feltman & Co	17,500	
G. Amsinck & Co.	6,000	
W. R. Grace & Co.	1,500	
A. M. Capens Sons	2,000	
Kunhardt & Co.	1,500	
Escobar & Gorgorza	1,500	
A. Rosenthals Sons.	1,500	
Suzarte & Whitney	500	32,000
OCT. 29.—By the *Terence*=Bahia:		
A. D. Hitch & Co.		22,500
OCT. 29.—By the *Vigilancia*=Mexico:		
Harburger & Stack	5,500	
H. Marquardt & Co.	2,500	
E. Steiger & Co.	2,500	
American Trading Co.	1,000	
Frederick Probst & Co.	1,000	12,500
OCT. 29.—By the *Prins Eithel*=Colon:		
Hirzel, Feltman & Co	13,500	
A. Santos & Co	600	14,100
OCT. 29.—By the *El Sud*=Galveston:		
Continental & Mexican Co		23,500
OCT. 29.—By the *Cienfuegos*=Tampico:		
Edward Maurer	25,000	
European Account	11,500	36,500
OCT. 31.—By the *Allianca*=Colon:		
Andean Trading Co.	7,800	
Hirzel Feltman & Co	2,500	
Piza, Nephews & Co.	2,200	
Mann & Emdon	1,600	
Bartling & DeLeon	700	14,800
OCT. 31.—By *Chalmette*=New Orleans:		
A. T. Morse & Co.		2,500
OCT. 31.—By the *Sarnia*=Colombia:		
Kunhardt & Co	3,500	
J. Held	1,500	
Isaac Brandon & Bros.	1,500	
D. A. DeLima & Co	900	
A. A. Lindo & Co	600	8,000
NOV 3.—By the *Campania*=Liverpool:		
George A. Alden & Co.	60,000	
General Rubber Co.	3,500	63,500
NOV. 3.—By the *Merida*=Frontera:		
Harburger & Stack	1,000	
Thebaud Brothers	700	
E. Steiger & Co.	500	
H. Marquardt & Co.	500	2,700

CENTRALS—Continued.

Nov. 5.—By the *El Rio*=New Orleans:

Manhattan Rubber Mfg. Co.	1,700	
A. T. Morse & Co.	2,000	
Eggers & Heinlein	1,000	4,700

Nov. 5.—By the *Brasilia*=Hamburg:

George A. Alden & Co.		11,500

Nov. 5.—By the *Grecian Prince*=Bahai.

New York Commercial Co	26,500	
J. H. Rossback & Bros.	22,500	
American Commerce Co.	6,000	55,000

Nov. 7.—By the *El Mar*=Galveston:

Remsch & Heald		45,000

Nov. 8.—By the *Thespis*=Bahia:

New York Commercial Co.		36,000

Nov. 7.—By the *Finance*=Colon:

G. Amsinck & Co.	2,200	
Aramburo Incpta.	2,000	
E. B. Strout	1,800	
Charles E. Griffin	1,000	
Piza, Nephews & Co.	500	
Meyer Hecht	600	8,100

Nov. 8.—By the *Teutonic*=Liverpool:

George A. Alden & Co.		17,000

Nov. 8.—By the *Atrato*=Colon:

Hirzel Feltman & Co.	3,200	
Dumarest Bros. & Co.	3,000	
Roldan & Van Sickle	1,700	
Frame & Co.	1,100	
E. B. Strout	1,200	
A. M. Capens Sons	700	
Mecke & Co.	500	
Graham, Hinkley & Co	600	
Isaac Brandon & Bros.	500	12,500

Nov. 10.—By the *Esperanza*=Frontera:

Graham, Hinkley & Co.	1,700	
E. Steiger & Co.	1,300	
Harburger & Stack	1,000	
Thebaud Brothers	500	
Isaac Kubie & Co.	500	5,000

Nov. 9.—By the *Colon*=Colon:

Lawrence Johnson & Co.	7,000	
Otto Gerdau	9,700	
Dumarest Bros. & Co.	4,000	
G. Amsinck & Co.	4,500	
Roldan & Van Sickle.	3,400	
Hirzel, Feltman & Co.	1,000	
Aramburo Incpta.	600	
Colombian Trading Co	500	30,700

Nov. 9.—By the *Pennsylvania*=Hamburg:

General Rubber Co.	13,500	
George A. Alden & Co.	8,500	22,000

Nov. 12.—By the *Carmania*=Liverpool:

George A. Alden & Co.		30,000

Nov. 12.—By the *El Paso*=New Orleans:

A. T. Morse & Co.	7,500	
A. N. Rotholz	2,000	
Eggers & Heinlein	1,500	
Manhattan Rubber Mfg. Co.	1,000	12,000

Nov. 14.—By the *Yucatan*=Tampico:

New York Commercial Co.	45,000	
Edward Maurer	26,000	
Remsch & Heald	27,000	
Graham Hinkley & Co	2,000	
H. Marquardt & Co.	1,000	101,000

Nov. 14.—By the *Advance*=Colon:

New York Commercial Co.	8,600	
Andean Trading Co.	5,200	
G. Amsinck & Co.	2,000	
Jose Julia & Co.	1,000	
A. D. Straus & Co.	500	17,300

Nov. 14.—By the *Sibiria*=Colombia:

Isaac Brandon & Bros.	7,500	
A. Held	3,500	
Kunhardt & Co.	2,500	
Fred Kugelman	2,000	
J. A. Pauli & Co.	2,000	
D. A. De Lima & Co.	500	
G. Amsinck & Co.	500	
Seanz & Co.	500	19,000

Nov. 16.—By the *Matanzas*=Tampico:

Edward Maurer	26,000	
New York Commercial Co.	22,500	
W. L. Wadleigh	1,000	49,500

Nov. 16.—By the *Batavia* Hamburg:

General Rubber Co.		7,000

Nov. 17.—By the *Soldier Prince*—Bahia:

New York Commercial Co.	42,000	
Adolph Hirsch & Co.	20,000	
J. H. Rossback & Bros.	3,000	65,000

Nov. 19.—By the *Panama*=Colon:

G. Amsinck & Co.	3,500	
Piza, Nephews Co	2,200	

CENTRALS—Continued.

Mann & Emdon	1,000	
New York Commercial Co.	900	
Meyer & Hecht	700	
Roldan & Van Sickle	500	
Hirzel Feltman & Co	500	9,300

Nov. 19.—By the *Chalmette*=Galveston:

Continental & Mexican Co.		22,500

Nov. 19.—By the *El Sud*=New Orleans:

A. T. Morse & Co.	4,000	
A. N. Rotholz	2,500	
Manhattan Rubber Mfg. Co.	1,500	
Eggers & Heinlein	1,200	
G. Amsinch & Co.	1,300	10,500

Nov. 20.—By the *Waldemar*=Colombia:

Kunhardt & Co	2,000	
G. Amsinck & Co.	1,500	
Mecke & Co	1,500	
Seanz & Co.	1,500	
A. A. Lindo & Co.	1,000	7,500

Nov. 20.—By the *El Alba*=Galveston:

Continental & Mexican Co.		60,000

AFRICANS.

	POUNDS.	
Oct. 20.—By the *St. Cuthbert*=Antwerp:		
Western Electric Co.	22,500	
Rubber Trading Co.	7,000	29,500
Oct. 22.—By the *St. Louis*=London:		
Poel & Arnold		11,500
Oct. 22.—By the *Amerika*=Hamburg:		
Robinson & Stiles		6,000
Oct. 22.—By the *Gascoyne*—Havre:		
A. T. Morse & Co		45,000
Oct. 22.—By the *Finland*=Antwerp:		
Poel & Arnold.	49,000	
A. T. Morse & Co	10,000	59,000
Oct. 24.—By the *Majestic*=Liverpool:		
Rubber Trading Co.	9,000	
A. T. Morse & Co.	4,500	
George A. Alden & Co.	2,500	16,000
Oct. 24.—By the *Minnesota*=Antwerp:		
George A. Alden & Co	30,000	
Henry A. Gould Co	4,500	
A. W. Brunn & Co	3,500	38,000
Oct. 25.—By the *Waldersee*=Hamburg:		
A. T. Morse & Co	85,000	
George A. Alden & Co.	25,000	
Poel & Arnold	38,000	148,000
Oct. 29.—By the *Celtic*=Liverpool:		
General Rubber Co.	11,500	
A. T. Morse & Co.	3,500	15,000
Oct. 29.—By the *Umbria*=Liverpool:		
General Rubber Co.	15,000	
George A. Alden & Co.	11,500	
Raw Products Co.	5,500	
Robinson & Stiles	2,000	34,000
Oct. 30.—By the *Ryndam*=Rotterdam:		
Poel & Arnold		9,000
Oct. 30.—By the *Zeeland*=Antwerp:		
Poel & Arnold.	38,000	
Raw Products Co	2,000	40,000
Oct. 31.—By the *Caronia*=Liverpool:		
General Rubber Co.	15,500	
George A. Alden & Co	3,000	
Livesey & Co	3,500	22,000
Nov. 1.—By the *Oceanic*=Liverpool:		
General Rubber Co.	22,500	
Henry A Gould Co	5,500	28,000
Nov. 3.—By the *Campania*=Liverpool:		
General Rubber Co.	32,000	
George A. Alden & Co.	11,500	
Earle Brothers	15,000	58,500
Nov. 5.—By the *St. Paul*=London:		
Poel & Arnold		10,000
Nov. 5.—By the *Lorraine*=Havre:		
George A. Alden & Co.		11,500
Nov. 8.—By the *Furnessia*=Glasgow:		
General Rubber Co.		11,500
Nov. 8.—By the *Teutonic*=Liverpool:		
Poel & Arnold	22,500	
A. T. Morse & Co.	7,000	29,500
Nov. 8.—By the *Samsland*=Antwerp:		
Poel & Arnold	100,000	
A. T. Morse & Co.	102,000	
Rubber Trading Co.	13,500	
Robinson & Stiles	4,500	220,000

AFRICANS—Continued.

Nov. 8.—By the *Cevic*=Liverpool:

Poel & Arnold		15,000

Nov. 9.—By the *Pennsylvania*=Hamburg:

A. T. Morse & Co.	11,500	
General Rubber Co.	9,000	
George A. Alden & Co.	5,000	
Rubber Trading Co.	6,000	31,500

Nov. 12.—By the *Carmania*=Liverpool:

George A. Alden & Co.	89,000	
Poel & Arnold	7,000	
A. W. Brunn & Co.	4,500	100,500

Nov. 12.—By the *La Touraine*= Havre:

General Rubber Co.	70,000	
George A. Alden & Co.	9,000	79,000

Nov. 12.—By the *Neckar* =Bremen:

General Rubber Co.	56,000	
A. T. Morse & Co.	22,500	78,500

Nov. 12.—By the *Kroonland*=Antwerp:

George A. Alden & Co.	103,000	
A. W. Brunn & Co.	3,500	
Poel & Arnold	50,000	156,500

Nov. 12.—By the *Noordam*=Rotterdam:

George A. Alden & Co.	45,000	
Poel & Arnold	35,000	80,000

Nov. 15.—By the *Baltic*=Liverpool:

Rubber Trading Co.	11,500	
A. W. Brunn & Co	7,000	
George A. Alden & Co.	2,000	20,500

Nov. 15.—By the *St. Laurent*=Havre:

Poel & Arnold		11,500

Nov. 16.—By the *Batavia*=Hamburg:

A. T. Morse & Co.	15,000	
George A. Alden & Co.	3,500	
Robinson & Stiles.	4,500	23,000

Nov. 17.—By the *Lucania*=Liverpool:

Poel & Arnold.	50,000	
A. T. Morse & Co	9,000	
General Rubber Co	5,500	64,500

Nov. 19.—By the *St. Louis*—London:

Poel & Arnold.		16,000

Nov. 19 —By the *Amsterdam*= Rotterdam:

George A Alden & Co.	10,000	
Rubber Trading Co.	5,500	15,500

Nov. 20.—By the *Montana*=Antwerp:

A. T. Morse & Co.		11,500

Nov. 20.—By the *Bevic*=Lisbon:

Poel & Arnold		22,500

Nov. 20.—By the *Amerika*=Hamburg:

W. L. Gough & Co.		11,000

EAST INDIAN.

	POUNDS.	
Oct. 22.—By the *Minnetonka*=London:		
Robinson & Stiles	10,000	
A. T. Morse & Co.	3,500	
George A. Alden & Co.	2,500	16,000
Oct. 22.—By the *Hudson*=Singapore:		
Heabler & Co.		40,000
Nov. 2.—By the *Mesaba*=London:		
Robinson & Stiles.	15,500	
George A. Alden & Co.	5,500	21,000
Nov. 3.—By the *John Hardie*=Singapore:		
W. L. Gough & Co.	20,000	
George A. Alden & Co.	10,000	30,000
Nov. 5.—By the *Brasilia*=Hamburg:		
George A. Alden & Co.		5,500
Nov. 9.—By the *Pennsylvania*=Hamburg:		
George A. Alden & Co.	13,500	
General Rubber Co.	4,500	18,000
Nov. 10.—By the *New York*=London:		
A. T. Morse & Co.		11,500
Nov. 12.—By the *Minneapolis*=London:		
George A. Alden & Co.	22,500	
General Rubber Co.	11,500	34,000
Nov. 15.—By the *Baltic*=Liverpool:		
George A. Alden & Co.		6,500
Nov. 16.—By the *Batavia*=Hamburg:		
George A. Alden & Co.	13,500	
Samuel H. Dodd	1,000	14,500
Nov. 19.—By the *Minnehaha*=London:		
George A. Alden & Co.	11,000	
H. W. Peabody & Co	5,000	16,000

EAST INDIAN—Continued.

GUTTA-JELUTONG.

OCT. 22.—By the *Hudson*—Singapore:

Heubler & Co.	250,000	
H. Rouli & Co.	40,000	
Joseph Cantor	35 000	325,000

NOV. 1.—By the *Jeserie*—Singapore:

D. A. Shaw & Co.	60,000	
J. W. Phyfe & Co.	55,000	
Poel & Arnold	80 000	
George A. Alden & Co.	136,000	351,000

NOV. 3.—By the *John Hardie*—Singapore:

George A. Alden & Co.	625,000	
J. W. Phyfe & Co	150,000	
William Tappenbach	200,000	
Joseph Cantor	65,000	
Winter & Smillie	11,000	1,051,000

GUTTA-PERCHA AND BALATA.

POUNDS

OCT. 22.—By the *Hudson*—Singapore:

Heubler & Co	10,000

OCT. 25.—By the *Waldersee*—Hamburg:

Robert Soltau Co.	7,500

NOV. 16.—By the *Batavia*—Hamburg:

Robert Soltau Co.	29 000

NOV. 19.—By the *America*—Hamburg:

A. W. Brunn & Co.	9,000

BALATA.

OCT. 24.—By the *Parima*—Demerara:

Middleton & Co.	18,000	
George A. Alden & Co	15 000	30,000

NOV. 5.—By the *Prins William Fifth*—Demerara:

Middleton & Co	11,500

NOV. 17.—By the *Korona*—Demerara:

Middleton & Co.	11,500	
George A. Alden & Co.	11,500	
Frame & Co	9,080	32,000

BALATA—Continued.

NOV 19—By the *Prins William First*—Curapano:

Frame & Co.	3,500	
D. A. DeLima & Co	2,000	
Cadenas & Coe	1,000	6,500

CUSTOM HOUSE STATISTICS.

PORT OF NEW YORK—OCTOBER.

Imports:	Pounds.	Value.
India-rubber	5,879,737	$4,773,084
Gutta-percha	9,529	4,681
Gutta jelutong (Pontianak)	1,706,180	63,279
Total	7,595,446	$4,841,044
Exports:		
India-rubber	68,099	$ 55,958
Reclaimed rubber	259,219	32,554
Rubber Scrap Imported	2,043,632	$ 202,515

BOSTON ARRIVALS.

POUNDS.

SEPT 4.—By the *Cestrian*=Liverpool:

Poel & Arnold—African	1,182

SEPT. 4.—By the *Sagamore*=Liverpool:

Poel & Arnold—African	26,759

SEPT. 11—By the *Devonian*=Liverpool:

F. R. Müller & Co.—African	8,606

SEPT. 13.—By the *Saxonia*=Liverpool:

George A. Alden & Co.—African	9,180

SEPT. 24.—*Graf Waldersee*=Hamburg:

Samples	11

SEPT. 25.—By the *Canadian*=Liverpool:

George A. Alden & Co.—African	22,919
Total	68,657

[Value $48,501.]

BOSTON ARRIVALS—Continued.

OCT. 9.—By the *Cestrian*=Liverpool:

George A. Alden & Co.—African	12,903

OCT. 16.—By the *Devonian*=Liverpool:

George A. Alden & Co.—African	4,930

OCT. 20.—By the *Sylvania*=Liverpool:

George A. Alden & Co.—African	1,244

OCT. 27—By the *Ivernia*=Liverpool:

Poel & Arnold—African	4,675

OCT. 29.—By the *Georgian*=London:

George A. Alden & Co.—East Indian	6,596
Total	30,348

[Value, $24,978.]

GUTTA-JELUTONG.

OCT. 29.—By the *Jeserie*=Singapore:

George A. Alden & Co.	92,188

AT PHILADELPHIA.

POUNDS.

OCT. 4.—By the *Westenland*=Liverpool:

William Wright & Co., Ceará	56,000

OCT. 7.—By the *Noordland*=Liverpool:

William Wright & Co., Ceará	44,500

OCT. 22.—By the *Friesland*=Liverpool:

William Wright & Co., Ceara	22,500

AT BALTIMORE.

POUNDS.

SEPT. 4.—By the *Vedamore*—Liverpool:

William Wright & Co., Ceara	33,500

OCT. 1.—By the *Templemore*=Liverpool:

William Wright & Co., Ceara	34 000

OCT. 8.—By the *Ulstermore*=Liverpool:

William Wright & Co., Ceará	56,000

OFFICIAL STATISTICS OF CRUDE INDIA-RUBBER (IN POUNDS)

UNITED STATES.

MONTHS.	IMPORTS	EXPORTS.	NET IMPORTS.
September, 1906	4,958,966	278,556	4,680,410
January-August	42,283,577	2,358,857	39,924,720
Nine months, 1906	47,242,543	2,637,413	44,605,130
Nine months, 1905	49,676,268	2,356,825	47,319 443
Nine months, 1904	44,553.345	2,586,325	41,967,845

GREAT BRITAIN.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
September, 1906	5,523,280	3,042.480	2,480,800
January-August	43,684,368	23,796,192	19,888,176
Nine months, 1906	49,207,648	26,838,672	22,368,976
Nine months, 1905	46,466,224	25,599,392	20,866,832
Nine months, 1904	41,722,016	24,239,158	17,482.858

GERMANY.

MONTHS	IMPORTS	EXPORTS.	NET IMPORTS.
September, 1906	2,421,980	1,167,760	1,254,220
January-August	25,497,340	7,564,040	17,933,300
Nine months, 1906	27,919,320	8,731,800	19,187,520
Nine months, 1905	33,791,120	12,538,900	21,252,220
Nine months, 1904	26,602,840	7,302,900	19,299,940

ITALY.

MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
July, 1906	241,560	55.440	186,120
January-June	1,463,440	204,600	1,258,840
Seven months, 1906	1,705,000	260.040	1.444,960
Seven months, 1905	954,360	147,620	806,740
Seven months, 1904	901,120	73.480	827.640

FRANCE.*

MONTHS.	IMPORTS.	EXPORTS.	‡NET IMPORTS.
September, 1906	1,848,440	2,118,600	270,160
January-August	21,413,260	11,885,940	9,527,320
Nine months, 1906	23,261,700	14,004,540	9,257,160
Nine months, 1905	19,182,900	12,190,640	6,992,260
Nine months, 1904	15,903.360	8,638,740	7,264,620

AUSTRIA-HUNGARY.

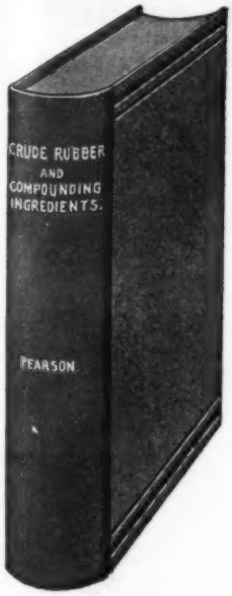
MONTHS.	IMPORTS.	EXPORTS.	NET IMPORTS.
July, 1906	271,260	63,360	207,900
January-June	2,082,520	373,560	1.708,960
Seven months, 1906	2.353,780	436,920	1.916,860
Seven months, 1905	1,842,940	21,340	1,821,600
Seven months, 1904	1.757,140	14.740	1 742,400

BELGIUM.†

MONTHS.	IMPORTS.	EXPORTS	‡NET IMPORTS
September, 1906	1.202.902	1,424,216	221,314
January-August	13,918,278	9,444,890	4,473,388
Nine months, 1906	15,121,180	10,869,106	4,252,074
Nine months, 1905	12,953,304	9,492,946	3,460,358
Nine months, 1904	13,839.547	11,097,046	2,752,411

NOTE.—German statistics before Jan. 1, 1906, include Gutta-percha, Balata, old (waste) rubber. British figures include old rubber. French, Austrian, and Italian figures include Gutta-percha. The exports from the United States embrace the supplies for Canadian consumption.

*General Commerce. †Special Commerce. ‡Net Exports.



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B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Deckle Straps.

Boston Belting Co Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Mechanical Rubber Co., Chicago.
New York Belting & Packing Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.

Door Springs.

Hodgman Rubber Co., New York.

Dredging Sleeves.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
N. J. Car Spring & Rubber Co., Jersey City.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston, Mass.

Force Cups.

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fruit Jar Rings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Manhattan Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
New York Belting & Packing Co., N. Y.

Fuller Balls.

B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Gage Glass Washers.

Boston Belting Co., Boston, Mass.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Electric Hose & Rubber Co., Wilmington, Del.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York.
Mechanical Rubber Co., Chicago, Ill.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Revere Rubber Co., Boston, Mass.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Gas-Bags (Rubber).

Canadian Rubber Co. of Montreal.

Gas Bags (Rubber).—Continued.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
Peerless Rubber Mfg. Co., New York.
Tyer Rubber Co., Andover, Mass.
Voorhees Rubber Mfg. Co., Jersey City.

Gasket Tubing.

Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
National India Rubber Co., Bristol, R. I.
New Jersey Car Spring & Rubber Co.
Revere Rubber Co., Boston.

"Gibraltar" Sheet Packing.

New Jersey Car Spring & Rubber Co.

Grain Drill Tubes.

Cincinnati Rubber Mfg. Co., Cincinnati, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

Hat Bags.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York
Mattson Rubber Co.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y
New York Rubber Co., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Horse Shoe Pads.

Canadian Rubber Co. of Montreal.
Home Rubber Co., Trenton, N. J.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City

Hose—Armored.

Hose—Wire Wound.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Electric Hose & Rubber Co. Wilmington, Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O
Revere Rubber Co., Boston-New York,
Voorhees Rubber Mfg. Co., Jersey City.

Hose Core.

Alderfer Crate Co., Sharon Center, Ohio.

Hose Couplings and Fittings.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
The Gutta Percha & Rubber Mfg. Co., of Toronto. Ltd.

Hose Linings.

Boston Belting Co., Boston-New Yrok.
Boston Woven Hose & Rubber Co.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston.

Hose—Protected.

Boston Belting Co., Boston-New York.
Electric Hose & Rubber Co., Wilmington, Del.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Revere Rubber Co., Boston-New York
Voorhees Rubber Mfg. Co., Jersey City.

Hose Racks and Reels.

Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Wirt & Knox Mfg. Co., Philadelphia.

Hose—Rubber Lined.

COTTON AND LINEN.

Boston Belting Co., Boston-New York
Boston Woven Hose & Rubber Co.
Gutta Percha & Rubber Mfg. Co., N. Y.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Fire Hose Co., New York.
Eureka Rubber Mfg. Co. of Trenton.
Fabric Fire Hose Co., New York.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Gutta Percha and Rubber Mfg. Co. of Toronto.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.
Jos. Stokes Rubber Co., Trenton, N. J.
Voorhees Rubber Mfg. Co., Jersey City.

Hose—Submarine.

Boston Belting Co., Boston-New York.
Electric Hose & Rubber Co., Wilming-Del.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston
A. Schrader's Son, Inc., New York.

"Gibraltar" Sheet Packing.

New Jersey Car Spring & Rubber Co.

"Jenkins '96" Packing.

Jenkins Bros., New York.

Lawn Sprinklers.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.

Mallets (Rubber).

Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto. Ltd.
National India Rubber Co., Bristol, R. I.
Peerless Rubber Mfg. Co., New York.
Revere Rubber Co., Boston New York.

Mould Work.

[*See Mechanical Rubber Goods.*]

H. O. Canfield Co., Bridgeport, Ct.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto. Ltd.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
Mattson Rubber Co., New York.
Mitzel Rubber Co., Akron, O.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

"Nubian" Packing.

Voorhees Rubber Mfg. Co., Jersey City.

Oil Well Supplies.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto. Ltd.
Home Rubber Co., Trenton, N. J.
Lake Shore Rubber Co., Erie, Pa.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-Pittsburgh.
Voorhees Rubber Mfg. Co., Jersey City.

Paper Machine Rollers.

Boston Belting Co., Boston-New York
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Peerless Rubber Mfg. Co., New York.
Voorhees Rubber Mfg. Co., Jersey City.

Plumbers' Supplies.

Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Republic Rubber Co., Youngstown, O.

Pump Valves.

[*See Mechanical Rubber Goods.*]

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York.
Revere Rubber Co., Boston, Mass.

Rollers—Rubber Covered.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
Eureka Rubber Mfg. Co. of Trenton.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co. New York.
Mechanical Rubber Co., Chicago.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton Mass.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston New York.

Sewing Machine Rubbers.

B. F. Goodrich Co., Akron, O.

Springs—Rubber.

Boston Belting Co., Boston-New York.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg Co., of Toronto. Ltd.
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City.
Peerless Rubber Mfg. Co., New York.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Stair Treads.

Boston Belting Co., Boston-New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J.
B. F. Goodrich Co., Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Manhattan Rubber Mfg. Co., New York
National India Rubber Co., Bristol, R. I.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg Co New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston-New York.
Voorhees Rubber Mfg. Co., Jersey City.

Thread.

B. F. Goodrich Co., Akron, O.
Mechanical Fabric Co., Providence, R. I.
Revere Rubber Co., Boston.

Tiling.

Anchor Tile Co., Trenton, N. J.
Canadian Rubber Co. of Montreal, Ltd.
B. F. Goodrich Co, Akron, O.
Gutta Percha & Rubber Mfg. Co., N. Y.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
N. J. Car Spring & Rubber Co., Jersey City.
New York Belting & Packing Co., N. Y.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, Ohio.
Voorhees Rubber Mfg. Co., Jersey City.

Tubing.

See Mechanical Rubber Goods.]

American Hard Rubber Co., New York.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
New Jersey Car Spring & Rubber Co.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Valve Balls.

Boston Belting Co., Boston.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Manhattan Rubber Mfg. Co., New York
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Valve Balls.—Continued.

New York Belting & Packing Co., N. Y.
New York Rubber Co., New York.
Peerless Rubber Mfg. Co. New York.
Republic Rubber Co., Youngstown, O.
Revere Rubber Co., Boston.

Valve Discs.

American Hard Rubber Co., New York
Boston Belting Co., Boston-New York.
B. F. Goodrich Co., Akron, O.
Jenkins Bros., New York.
Peerless Rubber Mfg. Co., New York.
Republic Rubber Co., Youngstown, O.

Valves.

[See Mechanical Rubber Goods.]

The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Jenkins Bros., New York-Chicago.
New Jersey Car Spring & Rubber Co.

Vulcanite Emery Wheels.

Manhattan Rubber Mfg. Co., Passaic N. J.
New York Belting & Packing Co. Ltd. New York.

Wringer Rolls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co. of Toronto, Ltd.
Home Rubber Co., Trenton, N. J.
Republic Rubber Co., Youngstown, O.

DRUGGISTS' AND STATIONERS' SUNDRIES

Atomizers.

Bandages.

Bulbs.

Syringes.

Water Bottles.

Druggists' Sundries—General.

American Hard Rubber Co., New York.
C. J. Bailey & Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Est. of Jos. Bachrach, Brooklyn, N. Y.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Imperial Rubber Co., Beach City, Ohio.
Mitzel Rubber Co., Akron, O.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Balls, Dolls and Toys.

New York Rubber Co., New York.

Combs.

American Hard Rubber Co., New York

Elastic Bands.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Tyer Rubber Co., Andover, Mass.

Erasive Rubbers.

Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.

Finger Cots.

Baumann Rubber Co., New Haven, Conn.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Mfg. Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Gloves.

Canadian Rubber Co. of Montreal.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.

Gloves.—Continued.

National India Rubber Co., Bristol, R. I.
Pure Gum Specialty Co., Barberton, O.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
H. O. Canfield Co., Bridgeport, Ct.
Davol Rubber Co., Providence, R. I.
Stokes Rubber Co., Joseph, Trenton, N. J.
Tyer Rubber Co., Andover, Mass.

Hospital Sheetings.

Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.
Plymouth Rubber Co., Stoughton, Mass.
Tyer Rubber Co., Andover, Mass.

Ice Bags and Ice Caps.

Est. of Jos. Bacharach, Brooklyn, N. Y.
Baumann Rubber Co., New Haven, Conn.
Cleveland Rubber Co., Cleveland, Ohio
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

Life Preservers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I

Nipples.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
Faultless Rubber Co., Akron, O.
B. F. Goodrich Co., Akron, O.
Hygeia Nursing Bottle Co., Buffalo, N. Y.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

Shower Bath Sprinklers.

A. Schrader's Son, Inc., New York.

Sponges (Rubber).

Faultless Rubber Co., Ashland, Ohio.

Stationers' Sundries.

American Hard Rubber Co., New York.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cincinnati Rubber Mfg. Co., Cincinnati, O.
Cleveland Rubber Co., Cleveland, O.
Davidson Rubber Co., Boston.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York-Boston.
Seamless Rubber Co., New Haven, Ct.
Tyer Rubber Co., Andover, Mass

Stopples (Rubber).

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
Hodgman Rubber Co., New York.
Manhattan Rubber Mfg. Co., New York
National India Rubber Co., Bristol, R. I.
New York Belting & Packing Co., N. Y.
A. Schrader's Son, Inc., New York.
Tyer Rubber Co., Andover, Mass.

Throat Bags.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
National India Rubber Co., Bristol, R. I.
Tyer Rubber Co. Andover, Mass.

Tobacco Pouches.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O
Tyer Rubber Co., Andover, Mass.

MACKINTOSHED AND SURFACE GOODS

Air Goods (Rubber).

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.

Air Goods (Rubber).—Continued.

New York Rubber Co., New York.
National India Rubber Co., Providence.
Tyer Rubber Co., Andover, Mass.

Air Mattresses.

Canadian Rubber Co. of Montreal.
Mechanical Fabric Co., Providence, R. I.
National India Rubber Co., Bristol, R. I.

Barbers' Bibs.

Cleveland Rubber Co., Cleveland, Ohio.
Davol Rubber Co., Providence, R. I.
Tyer Rubber Co., Andover, Mass.

Bathing Caps.

Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.

Bellows Cloths.

Boston Rubber Co., Boston.
Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.

Calendering.

La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass

Carriage Ducks and Drills.

Cleveland Rubber Co., Cleveland, O.
Empire Rubber Mfg. Co., Trenton, N. J
Eureka Rubber Mfg. Co. of Trenton.
Gutta Percha & Rubber Mfg. Co., Toronto.
National India Rubber Co., Bristol, R. I.

Clothing.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hodgman Rubber Co., New York.
La Crosse (Wis.) Rubber Mills Co.
National India Rubber Co., Bristol, R. I.
North British Rubber Co., Ltd., Edinburgh.
Pirelli & Co., Milan, Italy.

Cravenette.

Cravenette Co., Ltd.

Diving Apparatus.

A. Schrader's Son., Inc., New York.

Diving Dresses.

Hodgman Rubber Co., New York.

Dress Shields.

Mattson Rubber Co., New York.

Horse Covers.

Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I

Leggings.

Cleveland Rubber Co., Cleveland, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Mackintoshes.

[See Clothing.]

Proofing.

Canadian Rubber Co. of Montreal.
La Crosse (Wis.) Rubber Mills Co.
Plymouth Rubber Co., Stoughton, Mass.

Rain Coats.

Cravenette Co., Ltd.

Rubber Coated Cloths.

Mechanical Fabric Co., Providence, R. I.

RUBBER FOOTWEAR

Boots and Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co., Boston.
Canadian Rubber Co. of Montreal
L. Candee & Co., New Haven, Ct.
B. F. Goodrich Co., Akron, O.
Granby Rubber Co., Granby, Quebec.
Gutta Percha & Rubber Mfg. Co. of Toronto.
Hood Rubber Co., Boston.
Lycoming Rubber Co., Williamsport, Pa.
Meyer Rubber Co., New York.
National India Rubber Co., Boston.
North British Rubber Co., Ltd., Edinburgh.
United States Rubber Co., New York.
Wales-Goodyear Rubber Co., Boston.
Woonsocket Rubber Co., Providence.

Heels and Soles.

Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Continental Caoutchouc & Guttapercha Co., Hanover,
Grieb Rubber Co., Trenton, N. J.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
Plymouth Rubber Co., Stoughton, Mass

Tennis Shoes.

American Rubber Co., Boston.
Boston Rubber Shoe Co. Boston.
Granby Rubber Co., Granby, Quebec.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.
La Crosse Rubber Mills Co., La Crosse, Wis.
National India Rubber Co., Providence
United States Rubber Co., New York.

Wading Pants.

Canadian Rubber Co. of Montreal.
Hodgman Rubber Co., New York.

DENTAL AND STAMP RUBBER

Dental Gum.

American Hard Rubber Co., New York.
Cleveland Rubber Co., Cleveland, O.
Tyer Rubber Co., Andover, Mass.

Rubber Dam.

Cleveland Rubber Co., Cleveland, O.
Davol Rubber Co., Providence, R. I.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Stamp Gum.

B. F. Goodrich Co., Akron, O.
Mattson Rubber Co., New York.
Mechanical Rubber Co., Chicago, Ill.
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

ELECTRICAL

Electrical Supplies.

American Hard Rubber Co., New York.
Lake Shore Rubber Co., Erie, Pa.
Joseph Stokes Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Tyer Rubber Co., Andover, Mass.

Friction Tape.

Boston Belting Co., Boston.
Boston Woven Hose & Rubber Co.
Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
B. F. Goodrich Rubber Co., Akron, O.
Home Rubber Co., Trenton, N. J.
Massachusetts Chemical Co., Boston.
Mechanical Rubber Co., Chicago.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston-New York.

Hard Rubber Goods.

American Hard Rubber Co., New York.
Canadian Rubber Co. of Montreal.
Joseph Stokes Rubber Co., Trenton, N. J

Insulating Compounds.

Canadian Rubber Co. of Montreal.
Gutta-Percha & Rubber Mfg. Co., Toronto.
Massachusetts Chemical Co., Boston.

Insulated Wire and Cables.

National India Rubber Co., Providence

Splicing Compound.

Home Rubber Co., Trenton, N. J.

SPORTING GOODS

Foot Balls.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, O.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Golf Balls.

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
Davidson Rubber Co., Boston.
B. F. Goodrich Co., Akron, O.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd.

RUBBER BUYERS' DIRECTORY—CONTINUED.

Sporting Goods.

Canadian Rubber Co. of Montreal.
Faultless Rubber Co., Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Hodgman Rubber Co., New York.
Tyer Rubber Co., Andover, Mass.

Striking Bags.

Canadian Rubber Co. of Montreal.
Cleveland Rubber Co., Cleveland, Ohio.
Faultless Rubber Co , Akron, Ohio.
B. F. Goodrich Co., Akron, O.
Pure Gum Specialty Co., Barberton, O.

Submarine Outfits.

Hodgman Rubber Co., New York.

MISCELLANEOUS

Boiler Specialist.

H. W. Jones, New York.

Cement (Rubber).

Boston Belting Co., Boston.
Canadian Rubber Co. of Montreal.
B. F. Goodrich Co., Akron, O.
Hadley Cement Co., Lynn, Mass.

Cement (Rubber).—Continued.

Manhattan Rubber Mfg. Co., New York
N. J. Car Spring & Rubber Co., Jersey City, N. J.
New York Belting & Packing Co., N. Y.

Chemical Analyses.

Durand Woodman, Ph. D., New York.
H. L. Terry, Manchester, England.

Chemical and Mechanical Engineer.

Charles E. Farrington, Boston.

Chemists.

Stephen P. Sharples, Boston, Mass.
Durand Woodman, Ph. D., New York.

Engraver.

P. C. Smith, Boston, Mass.

Rubber Journals.

Gummi-Zeitung, Dresden, Germany.

Rubber Patents.

Clarence E. Humphrey, Akron, O.

Rubber Planting.

Batavia Company, Batavia, N. Y.
Ohio Rubber Culture Co., Canton, Ohio.

Rubber Tree Seeds.

J. P. William & Bros., Heneratgoda, Ceylon.

MACHINERY AND SUPPLIES FOR RUBBER MILLS.

RUBBER MACHINERY

Acid Tanks.

Birmingham Iron Foundry, Derby, Ct.

Band Cutting Machine.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Belt Folding Machines.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Slitters.

Cloth Dryers.

Gearing.

Shafting.

Wrapping Machines.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Belt Stretchers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Hoggson & Pettis Mfg. Co., New Haven.

Boilers.

William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Braiders.

New England Butt Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Buckles.

The Weld Mfg. Co., Boston.

Cabling Machinery.

Alton Machine Co., New York.

Calenders.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
Textile-Finishing Machinery Co., Providence, R. I.
Textile Machine Works, Reading, Pa.

Castings.

A. Adamson, Akron, O.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach Co., Ansonia, Ct.

Chucks (Lathe).

Hoggson & Pettis Mfg. Co., New Haven.

Churns.

American Tool & Machine Co., Boston

Clutches.

Farrel Foundry & Mach. Co., Ansonia, Ct

Crackers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.

Devulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Edred W. Clark, Hartford, Ct.
William R. Thropp, Trenton, N. J.

Dies.

John J. Adams, Worcester, Mass.
Barbour Bros., Trenton, N. J.
T. J. Beaudry, Marlboro, Mass.
Brockton Die Co., Brockton, Mass.
Hoggson & Pettis Mfg. Co., New Haven.

Dies.—Continued.

Independent Die Co., Brockton, Mass.
Joseph E. Knox & Co., Lynn, Mass.

Doubling Machines.

American Tool & Machine Co., Boston.

Drying Apparatus.

American Process Co., New York.

Drying Machines.

Alton Machine Co., New York.
Joseph P. Devine, Buffalo, N. Y.
Birmingham Iron Foundry, Derby, Ct.
Textile-Finishing Machinery Co., Providence, R. I.

Embossing Calenders.

Textile-Finishing Machinery Co., Providence, R. I.

Engines, Steam.

Alton Machine Co., New York.
William R. Thropp, Trenton, N. J.
John E. Thropp & Sons Co., Trenton, N. J.

Engraving Roll.

Hoggson & Pettis Mfg. Co., New Haven.

Grinders and Mixers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.

Hangers.

Farrel Foundry & Mach. Co., Ansonia, Ct.

Hose Machines.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Hydraulic Accumulators.

Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.

Insulating Machinery.

Textile Machine Works, Reading, Pa.

Iron Castings.

Alton Machine Co., New York.

Lasts (Rubber Shoe).

Middlesex Last Co., Boston.

Lathes—Hard Rubber.

A. Adamson, Akron, Ohio.

Lathes—Jar Ring.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
William R. Thropp, Trenton, N. J.

Machinists' Tools.

Hoggson & Pettis Mfg. Co., New Haven.

Moulds.

A. Adamson, Akron, Ohio.
Alton Machine Co., New York.
W. E. Arnold, Malden, Mass.
Barbour Bros., Trenton, N. J.
Birmingham Iron Foundry, Derby, Ct.
H. O. Canfield Co., Bridgeport, Ct.
Hoggson & Pettis Mfg. Co., New Haven.

Pillow Blocks.

Farrel Foundry & Mach. Co., Ansonia, Ct

Presses (for Rubber Work.)

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse, N. Y.
Edred W. Clark, Hartford, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.

Pumps.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
Boomer & Boschert Press Co., Syracuse.
Farrel Foundry & Mach. Co., Ansonia, Ct

Racks for Boot and Shoe Cars.

Hoggson & Pettis Mfg. Co., New Haven.

Reducing Valves.

Mason Regulator Co., Boston.

Rollers (Hand).

Hoggson & Pettis Mfg. Co., New Haven.

Rubber Covering Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Rubber Growers' Utensils.

CEMENT CANS AND TANKS.

American Can Co., New York.

REPAIRING KIT BOXES.

American Can Co., New York.

Separators.

Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Separators for Reclaimed Rubber.

American Process Co., New York.

Special Rubber Machinery.

Alton Machine Co., New York.
Wellman Seie Cutting Machine Co., Medford, Mass.

Spreaders.

Alton Machine Co., New York.
American Tool & Machine Co., Boston
Birmingham Iron Foundry, Derby, Ct.
New England Butt Co., Providence, R. I.

Steam Traps and Specialties.

Jenkins Bros., New York.
Mason Regulator Co., Boston.
Osgood Sayen, Philadelphia, Pa.

Steel Stamps.

Hoggson & Pettis Mfg. Co., New Haven.

Stitchers (Hand).

Hoggson & Pettis Mfg. Co., New Haven

Strip Covering Machines.

Strip Cutters.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Tire Molds.

Bay State Machine Co., Erie, Pa.

Tubing Machines.

A. Adamson, Akron, O.
Alton Machine Co., New York.
Bay State Machine Co., Erie, Pa.
Edred W. Clark, Hartford, Ct.
John Royle & Sons, Paterson, N. J
Textile Machine Works, Reading, Pa.

Vacuum Drying Chambers

Alton Machine Co., New York.
Joseph P. Devine Co., Buffalo, N. Y.

Varnishing Machines.

Birmingham Iron Foundry, Derby Ct.

Vulcanizers.

Alton Machine Co., New York.
Biggs Boiler Works Co., Akron, Ohio.
Birmingham Iron Foundry, Derby, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.
John E. Thropp's Sons Co., Trenton, N. J.

Washers.

Alton Machine Co., New York.
Birmingham Iron Foundry, Derby, Ct.
H. O. Canfield Co., Bridgeport, Ct.
Farrel Foundry & Mach. Co., Ansonia, Ct.
William R. Thropp, Trenton, N. J.
Turner, Vaughn & Taylor Co., Cuyahoga Falls, Ohio.

Wire Insulating Machines.

Alton Machine Co., New York.
New England Butt Co., Providence, R. I.

Wire Rope Machinery.

Alton Machine Co., New York.

SECOND-HAND MACHINERY.

Philip Broomfield, Boston, Mass.
W. C. Coleman Co., Rochelle Park, N. J
Philip McGrory, Trenton, N. J.
M. Norton & Co., Charlestown, Mass.

FACTORY SUPPLIES

Acid (Carbolic).

Barrett Mfg. Co., Philadelphia.

Antimony, Sulphurets of.

GOLDEN.

Actien-Ges. Georg Egestorff's Salzwerke, Linden, Germany.
Atlas Chemical Co., Newtonville, Mass.

GOLDEN AND CRIMSON.

Joseph Cantor, New York.
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Balata.

George A. Alden & Co., Boston.

Benzol.

Barrett Mfg. Co., Philadelphia.
Samuel Cabot, Boston.

Black Hypo.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.

Boxes (Wood).

Henry H. Sheip & Co., Philadelphia.

Brass Fittings.

A. Schrader's Son, Inc., New York.

Carbon Bisulphide.

George W Speaight, New York.

Caustic Soda.

Acker Process Co., Niagara Falls, N. Y.

Chemicals.

Acker Process Co., Niagara Falls, N. Y
George W. Speaight, New York.
S. P. Wetherill Co., Philadelphia, Pa.

Colors.

Joseph Cantor, New York.
William H. Scheel, New York.
Typke & King, London, England.
S. P. Wetherill Co., Philadelphia, Pa.

MACHINERY AND SUPPLIES FOR RUBBER MILLS—CONTINUED.

Crude Rubber.
George A. Alden & Co., Boston.
A. W. Brunn & Co., New York.
Hagemeyer & Brunn, New York.
Adolph Hirsch & Co., New York.
F. R. Müller & Co., New York.
Para Recovery Co., Bayonne, N. J.
Rubber Trading Co., New York-Boston.

Dermatine.
The Dermatine Co., London.

Ducks and Drills (Cotton).
J. H. Lane & Co., New York.

Gilsonite.
William H. Scheel, New York.

Graphite.
United States Graphite Co., Philadelphia.

Graphite Grease.
Jos. Dixon Crucible Co., Jersey City.

Guayule Rubber.
Continental Rubber Co.
Ed. Maurer, New York.

Gutta-Percha.
George A. Alden & Co., Boston.
Rubber Trading Co., New York-Boston

Hose Bands, Straps & Menders.
Boston Woven Hose & Rubber Co.
William Yerdon, Fort Plain, N. Y.

Hose Pipes, Nozzles & Couplings.
Boston Woven Hose & Rubber Co.
Eureka Fire Hose Co., New York.
Revere Rubber Co., Boston.
A. Schrader's Son, Inc., New York.

Hydro-Carbon Products.
Geo. A. Alden & Co., Boston.
William H. Scheel, New York.

Infusorial Earth.
Stamford (Conn.) Rubber Supply Co.

Lampblack.
Samuel Cabot, Boston.

Lawn-Hose Supporters.
C. J. Bailey & Co., Boston.

Lead—Blue.

Lead—Sublimed White.
Picher Lead Co., Chicago, Ill.

Lithopone.
Gabriel & Schall, New York.

Naphtha.
Barrett Mfg. Co., Philadelphia.

Paris White and Whiting.
H. F. Taintor Mfg. Co., New York.

Recording Thermometers.
Bristol Co., New York.

Reclaimed Rubber.
Aladdin Rubber Co., Akron, Ohio.
Alkali Rubber Co., Akron, Ohio.
American Reclaimed Rubber Co., Rochelle Park, N. J.
F. H. Appleton & Son, Boston.
Bloomingdale (N. J.) Soft Rubber Co.
E. H. Clapp Rubber Co., Boston, Mass.
Danversport Rubber Co., Boston.
Derby Rubber Co., Derby, Conn.
Eastern Rubber Co., New York.
Trenton (N. J.) Rubber Reclaiming Works.
Manufactured Rubber Co.

Reclaimed Rubber.—Continued.
New Jersey Rubber Co., Lambertville, N. J.
Pequanoc Rubber Co., Butler, N. J.
Philadelphia Rubber Wks., Philadelphia.
Stockton Rubber Co., Stockton, N. J.
Jos. Stokes Rubber Co., Trenton, N. J.
S. & L. Rubber Co., Chester, Pa.
U. S. Rubber Reclaiming Wks., N. Y.
Westmoreland Rubber Mfg. Co., Grapeville, Pa.

AGENTS AND DEALERS.
Goldberg & Rathman, Boston, Mass.
Philip McGrory, Trenton, N. J.
H. P. Moorhouse, Paris, France.
Rubber Trading Co., New York-Boston.
Wm. Somerville's Sons, Liverpool.

Scrap Rubber.
L. Albert & Son, Trenton, N. J.
Bers & Co., Philadelphia.
P. Broomfield & Co., Boston.
C. Clifford, Baltimore, Md.
Wm. H. Cummings & Sons, New York.
Goldberg & Rathman, Boston, Mass.
Theodore Hofeller & Co., Buffalo, N. Y.
A. W. Leslie & Co., Ltd., London, Eng.
B. Loewenthal & Co., New York and Chicago.
J. Loewenthal & Sons, Chicago.
Philip McGrory, Trenton, N. J.
Meyer Bros., Philadelphia, Pa.
Trenton (N. J.) Rubber Reclaiming Works.
M. Norton & Co., Charlestown, Mass.
San Giacomo Sons, Newark, N. J.
J. Schnurmann, London.
Schwab & Co., Philadelphia.
Trenton Scrap Rubber Supply Co., Trenton, N. J.

Scrap Rubber.—Continued.
United States Waste Rubber Co., Brockton, Mass.
M. J. Wolpert, Odessa, Russia.

Substitute.
Joseph Cantor, New York
Geo. F. Lufbery, Jr., Elizabeth, N. J.
Massachusetts Chemical Co., Boston.
The Rubber Chemical Co., Birmingham, England.
Wm. H. Scheel, New York.
Stamford (Conn.) Rubber Supply Co.
Typke & King, London, England.

Sulphur.
Battelle & Renwick, New York.
T. & S. C. White Co., New York.

Sulphur Chloride.
Acker Process Co., Niagara Falls, N. Y.
William H. Scheel, New York.
George W. Speaight, New York.
Stamford (Conn.) Rubber Supply Co.

Tire Fabrics.
J. H. Lane & Co., New York.

Tire Valves.
A. Schrader's Son, Inc., New York.

Valves for Air Goods.
A. Schrader's Son., Inc., New York.

Zinc Substitute.
Aluminum Flake Co., Akron, Ohio.

Zinc Sulphide.
Joseph Cantor, New York.
Typke & King, London, England

Zinc White.
New Jersey Zinc Co., New York
Stamford (Conn.) Rubber Supply Co.

BUYERS' DIRECTORY
—FOR—
Rubber Tires and Accessories.

Auto Top Fabrics.
Hodgman Rubber Co., New York.
National India Rubber Co., Bristol, R. I.

Fabrics.
Lane & Co., J. H., New York.
National India Rubber Co., Bristol, R. I.

Flanges and Rings.
The A. Dewes Co., New York.

Insulated Wires.
National India Rubber Co., Bristol, R. I.

Mats, Automobile.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
The Gutta Percha & Rubber Mfg. Co., of Toronto, Ltd
Manhattan Rubber Mfg. Co., New York.
National India Rubber Co., Bristol, R. I.
Revere Rubber Co., Boston, Mass.

Repair Stock.
Trenton Rubber Mfg. Co., Trenton, N. J.

Rims, Wheel.
Goodrich Co., B. F., Akron, Ohio

Tires.
Bailey & Co., C. J., Boston, Mass.
Canadian Rubber Co. of Montreal, Ltd.
Continental Caoutchouc Co., New York.
Dunlop Tire & Rubber Goods Co., Toronto.
Empire Rubber Mfg. Co., Trenton, N. J.
Goodrich Co., B. F., Akron, Ohio.
Gutta Percha & Rubber Mfg. Co., Toronto.
Kokomo Rubber Co., Kokomo, Ind.
Lake Shore Rubber Co., Erie, Pa.
North British Rubber Co., Ltd., Edinburgh, Scotland.
Pirelli & Co., Milan, Italy.
Plymouth Rubber Co., Stoughton, Mass.
Republic Rubber Co., Youngstown, Ohio.
Trenton Rubber Mfg. Co., Trenton, N. J.

AUTOMOBILE AND CARRIAGE.
Boston Belting Co., Boston-New York.
Eureka Rubber Mfg. Co., Trenton, N. J.
Revere Rubber Co., Boston-New York.

Tire Fabrics.
Lane & Co., J. H., New York.

Tire Repairing.
Voorhees Rubber Mfg. Co., Jersey City, N. J.

Treads.
Boston Woven Hose & Rubber Co., Cambridge, Mass.
Manhattan Rubber Mfg. Co., New York.
Revere Rubber Co., Boston, Mass.

Valves, Tire.
Schrader's Sons, Inc., A., New York.

Wires, Insulated.
National India Rubber Co., Bristol, R. I.

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